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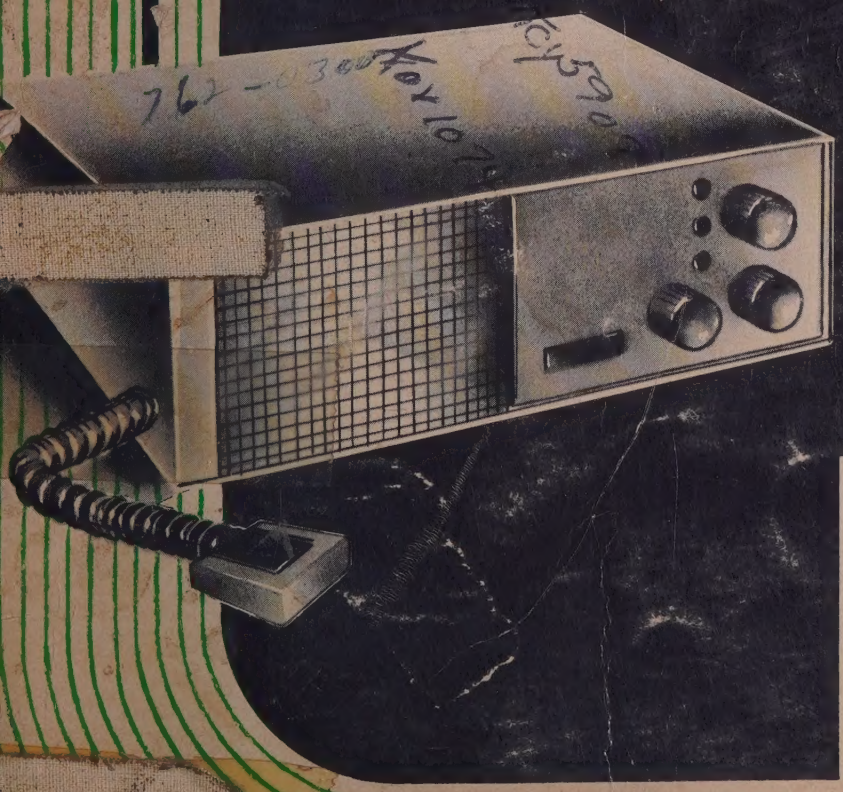
CITIZENS BAND RADIO MANUAL



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CITIZENS BAND RADIO MANUAL

VOLUME 2

J. B.'s CB SERVICE
c/o JAMES BRUMIT
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by

The Howard W. Sams Engineering Staff

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PREFACE

Citizens-band radio is a rapidly growing field, not only in sales but also from the servicing standpoint. Close to 250,000 CB licenses have been issued by the FCC. Many of these licensees are buying not just one or two pieces of equipment, but enough to equip an entire fleet of cars or trucks. It doesn't take much imagination to understand why additional servicing facilities for this type of equipment are in demand and the potential opportunity awaiting the enterprising service technician.

Before the technician can service CB radio, however, he must thoroughly understand the type of equipment he will be called on to service. Further, there are certain conditions of installation and repair which must satisfy not only the customer, but the FCC as well.

The purpose of this book, the second of a series, is to provide the needed service information for several of the most popular CB units. A text section at the beginning introduces the technician to Citizens-band radio equipment. It discusses the classes of equipment used, receiver and transmitter circuits, transceivers (including transistorized types), kits, as well as other equipment such as converters, transverters, and the tone-coded squelch system. Complete PHOTOFACT schematics covering widely used CB transceivers are included to make your servicing of CB equipment faster, easier, and more profitable.

April, 1962

Howard W. Sams

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Although the Citizens Radio Service was established back in 1949, it was not until the Class-D service was introduced in 1958 that it really got off the ground. Prior to this time all CB operation was confined to the ultrahigh frequencies, and what little UHF equipment was available then was rather expensive. Since the initiation of the Class-D service, however, an ever-increasing number of manufacturers are producing CB radio equipment to fill the demand imposed by the widespread popularity of this new service. At present, Class-D equipment is available in a variety of makes and models and for every conceivable operation. Moreover, to fall in line with the current "do-it-yourself" trend, much of this radio equipment is available in kit form. Because no technical knowledge is required of an applicant for a Citizens-band license, a great deal of these construction projects are performed by inexperienced persons, and quite often a kit that has been improperly assembled will find its way into the hands of the service technician, who is called on to make the necessary corrections.

CLASSES OF EQUIPMENT

Two-way radio equipment is constructed in several ways. One method is to house the transmitter and receiver in separate units. In another arrangement, both units are contained in the same housing but still operate independently. A third method of construction involves combining the transmitter and receiver. The latter design, and the one used almost entirely for Class-D Citizens-band equipment, is known as a transceiver. Here, the transmitter and receiver are on the same chassis and have some circuits other than the power supply in common. For example, the two final stages of the receiver—namely the audio amplifier and audio output—may also serve as a speech amplifier and modulator, respectively, in the transmitting mode.

Fig. 1 is a block diagram of a transceiver using this arrangement. Relay M1 is provided to route the signal along the proper paths. When this relay is in a resting or de-energized condition, its contacts provide a signal path from the antenna to the receiver input stage as shown. After passing through the RF and IF stages the signal is fed to the detector, where the audio component is recovered from the carrier. From the detector output, the audio signal flows through the contacts of M1B to the first audio amplifier, then to the audio power amplifier, and finally through M1C to the speaker. When the microphone is keyed to transmit, relay M1 is energized and its contacts are switched to position T. Now the antenna is no longer connected to the receiver input, but instead to the transmitter output. M1B disconnects the detector output and in turn connects the microphone to the input of the first audio stage, as shown in Fig. 2. This stage serves as a speech amplifier, and the audio output now acts as a modulator. The RF power amplifier (V3) obtains its B+ from the plate circuit of the modulator, thereby causing the audio component to be superimposed on the transmitted carrier signal. The contacts of M1A provide a signal path from the output of V3 to the antenna. When the transceiver is operating in the transmit mode, the secondary of output transformer T1 is opened by M1C, thereby killing the speaker.

RECEIVERS

The receivers employed in CB equipment must be quite sensitive and also very selective. First of all, the radio signals which they must handle are relatively weak, compared with the radio signals in some of the other services. Moreover, these receivers must be selective enough to prevent adjacent-channel interference, which can be quite troublesome.

Two types of receiver circuits are employed in CB transceivers, the regenerative and the superheterodyne. There are, of course, variations within these designs.

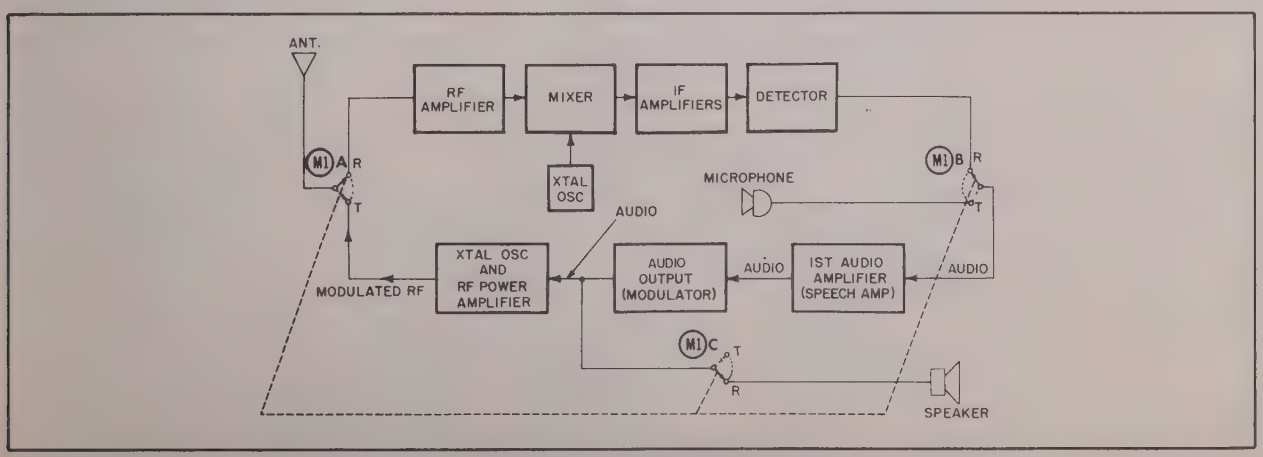


Fig. 1. Block diagram of a typical CB Class-D transceiver.

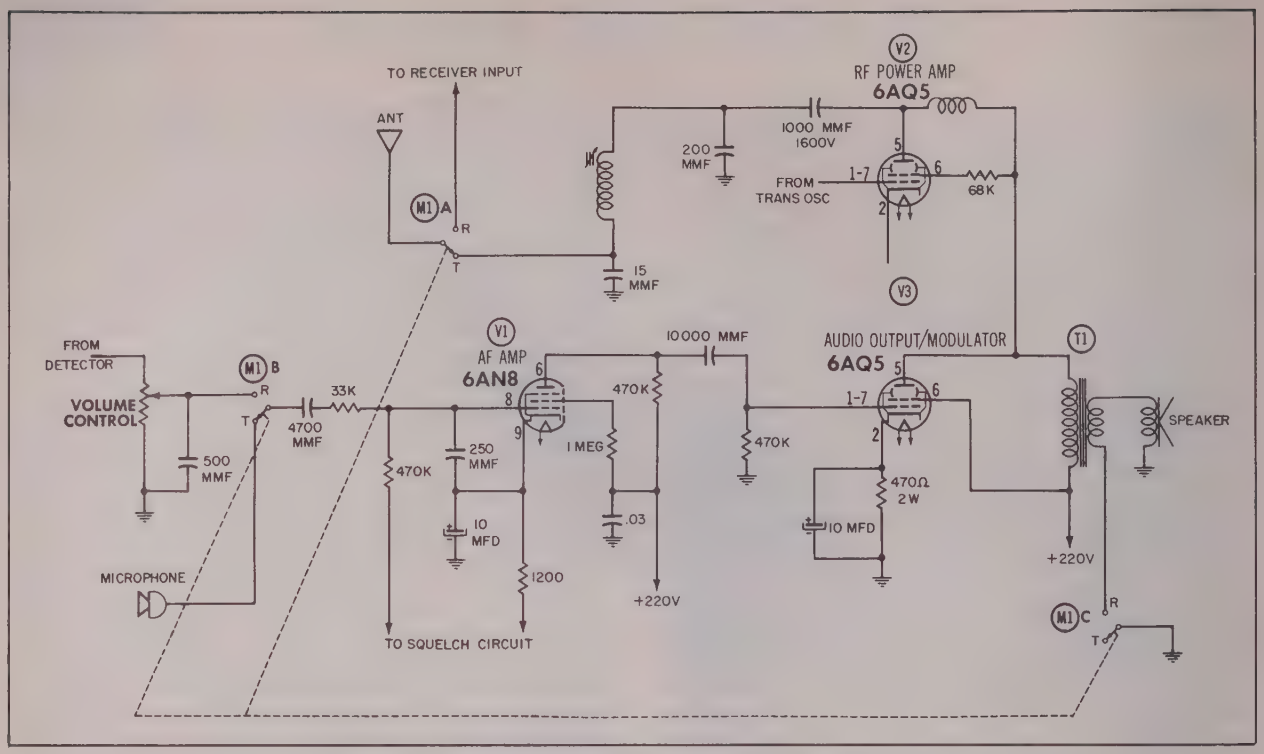
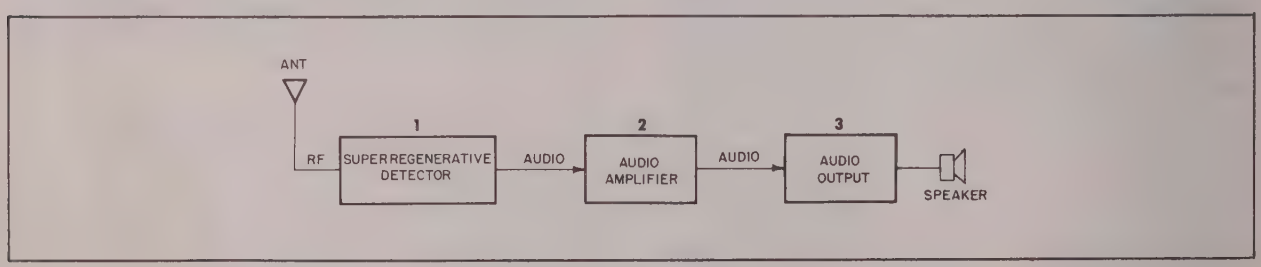


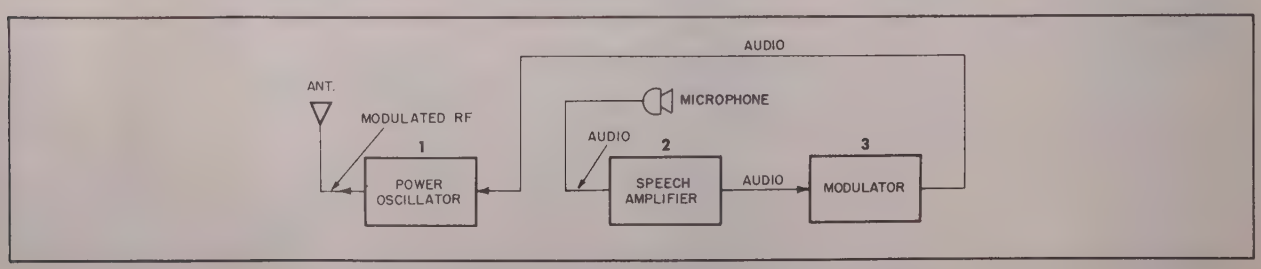
Fig. 2. A superregenerative three-stage UHF transceiver.

Regenerative

The regenerative receiver is by far the simpler of the two. It may consist of only two or three stages, as opposed to perhaps nine or ten in the superheterodyne arrangement. The heart of the regenerative receiver is the regenerative detector. In this stage a certain amount of RF energy is fed back to the control-grid circuit with the proper phase to cause regeneration and thereby greatly increase the amplification of the signal. If the feedback process is carried too far, however, the entire detector stage will go into oscillation. A regeneration control regulates the amount of feedback and hence the sensitivity of the receiver. Of those transceivers with regenerative circuits, most use a more stabilized version known as the superregenerative detector. In this circuit, a quenching frequency is generated at regular intervals to prevent the stage from going into oscillation. This permits more feedback to be used and thus improves the sensitivity over that of a receiver with a straight regenerative detector. A separate quenching stage can be used, but in CB equipment the self-quenching detector is almost universal. An RF amplifier may or may not be used ahead of this stage, but



(A) In the receiving mode.



(B) In the transmitting mode.

Fig. 3. Function of the stages in the transceiver of Fig. 2.

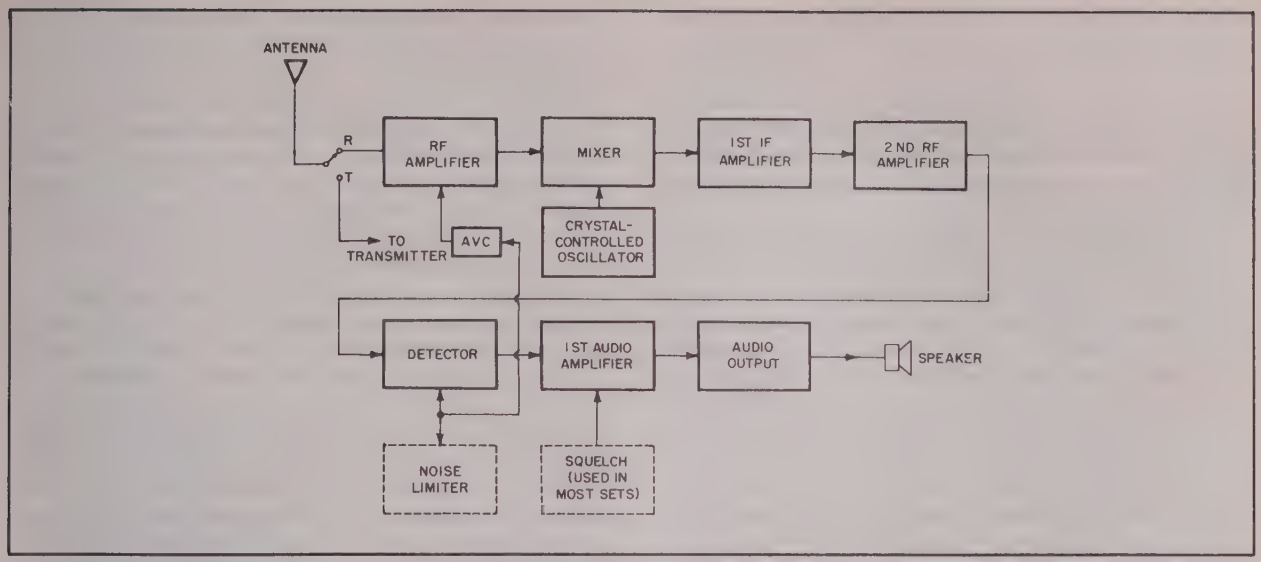


Fig. 4. Block diagram of a superheterodyne receiver.

practically all such receivers employ two audio amplifiers beyond it. One of the inherent characteristics of the superregenerative circuit is its ability to "hang on" to radio signals. This makes the stage appear as though it employed AFC.

In some Class-B equipment, both the transmitting and receiving functions are accomplished with only three vacuum-tube stages. Fig. 3 is a block diagram showing the functions of these stages during each mode of operation. When receiving (Fig. 3A), stage 1 operates as a superregenerative detector. The audio signal at the output of this stage is fed to stages 2 and 3, which are conventional audio voltage and power amplifiers respectively. In the transmitting mode (Fig. 3B), stages 2 and 3 now serve as a speech amplifier and modulator, and stage 1 becomes a power oscillator which feeds the modulated RF directly to the antenna.

Regenerative receivers provide fair sensitivity and selectivity with a minimum of components. Hence, the cost of such equipment can be kept rather low. Because of this and the simplicity of the circuitry, regenerative receivers are employed in a great many transceiver kits.

Superheterodyne

Superheterodyne receivers are much more complex than regenerative receivers, but provide greater sensitivity and selectivity. A block diagram of a typical superheterodyne receiver is shown in Fig. 4. In addition to the eight basic stages shown here, two or three more are generally included for squelch, noise limiting, etc. The dual-conversion superheterodyne (to be discussed shortly) has even more stages.

Practically all superhet receivers employ an RF amplifier for two reasons. First of all, mixer stages generate a considerable amount of circuit noise while performing their frequency-conversion function. By using an RF amplifier ahead of this stage the incoming signal can be made strong enough to overcome most of this noise and hence provide a better signal-to-noise ratio. Secondly, an RF amplifier stage acts as a buffer, isolating the oscillator and mixer stages from the antenna and thereby preventing the local-oscillator signal from feeding through to the antenna and being radiated. Such radiation would serve no useful purpose; in fact, it would only interfere with radio and tele-

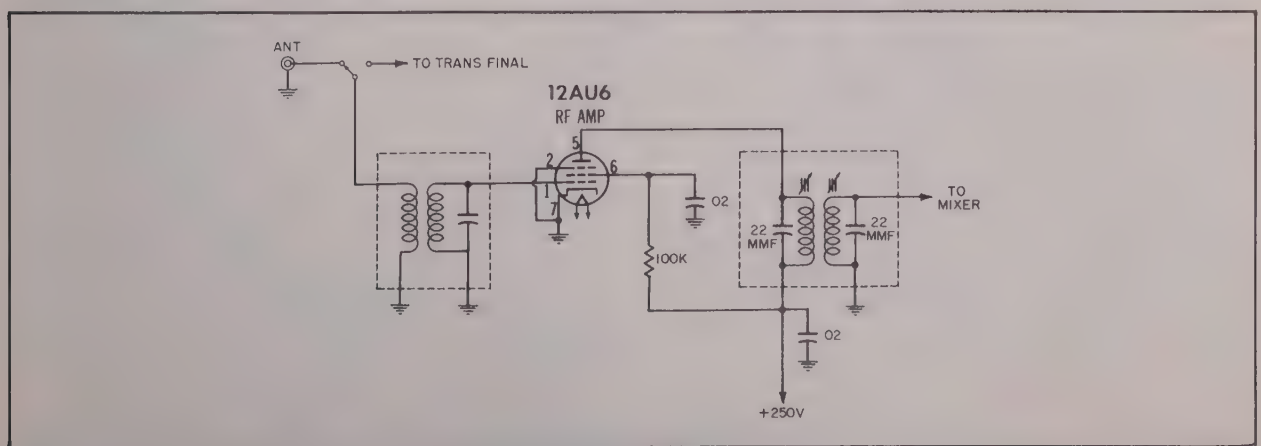
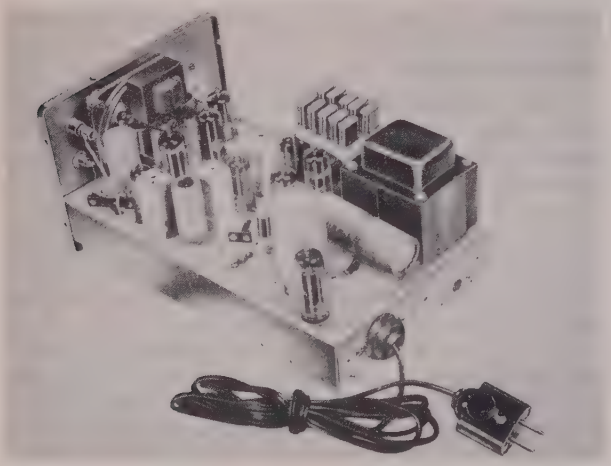


Fig. 5. Typical RF amplifier stage.

vision equipment. While any one of several tube types could be employed as an RF amplifier, pentodes are used almost entirely. Triodes generally have a much lower noise factor than pentodes but provide much less gain, and gain is the prime consideration here. Most RF amplifiers employed in CB equipment are straightforward, as you can see from Fig. 5.

Since the Class-D channels are only 10 kc apart, frequency drift must be kept to a minimum. Otherwise, adjacent-channel interference can be quite troublesome. Practically all superheterodyne receivers in Class-D operation, and for that matter in Class-A as well, are crystal controlled for greater frequency stabilization. Generally, the transmitter and receiver crystals are paired for the same channel so that both can be switched into operation at the same frequency simultaneously. Fig. 6 shows a five-channel Class-D transceiver using paired transmitter and receiver crystals.



Courtesy E. F. Johnson Co.

Fig. 6. A 5-channel Class-D transceiver with paired transmitter and receiver crystals.

Frequency conversion in CB receivers is generally accomplished in a conventional manner, either with a separate oscillator and mixer or with a single converter stage using the pentagrid configuration. Two IF amplifier stages normally follow the mixer or converter, and these two are generally of conventional design although the IF frequencies in different equipment may vary considerably. Some of the most popular IF values are 455, 1,650, 1,680, and 1,750 kc.

Detector stages may employ a vacuum tube or a semiconductor diode labeled detector or detector/AVC. AVC (automatic volume control) is used as a means of controlling the gain of a receiver so that it will vary in inverse proportion to the strength of the incoming radio signals. In other words, with AVC the gain of the receiver tends to remain the same for both strong and weak signals. The AVC voltage changes the gain by increasing or decreasing the DC grid bias of one or more stages. It is desirable that at least two stages of the receiver be controlled, usually the RF amplifier and one or more IF stages. The more stages under control, the more efficient the AVC action. Quite often delayed AVC is used, whereby the control action does not occur until the signal strength reaches a predetermined value. This permits maximum gain to be achieved on the weaker audio signals. When delayed AVC is used, a separate AVC diode is necessary. The audio detector, if employed, would prevent demodulation of the weaker signals and distort the audio signal.

Noise-limiter circuits are also used in most CB receivers. Ignition noise and other pulse-type interference is especially troublesome around the Class-D frequencies. The purpose of the noise-limiter circuit is to eliminate or at least minimize noise peaks which accompany the signal through the receiver. A number of different circuits have been developed for this purpose. Some, of course, are much more efficient than others; however, we

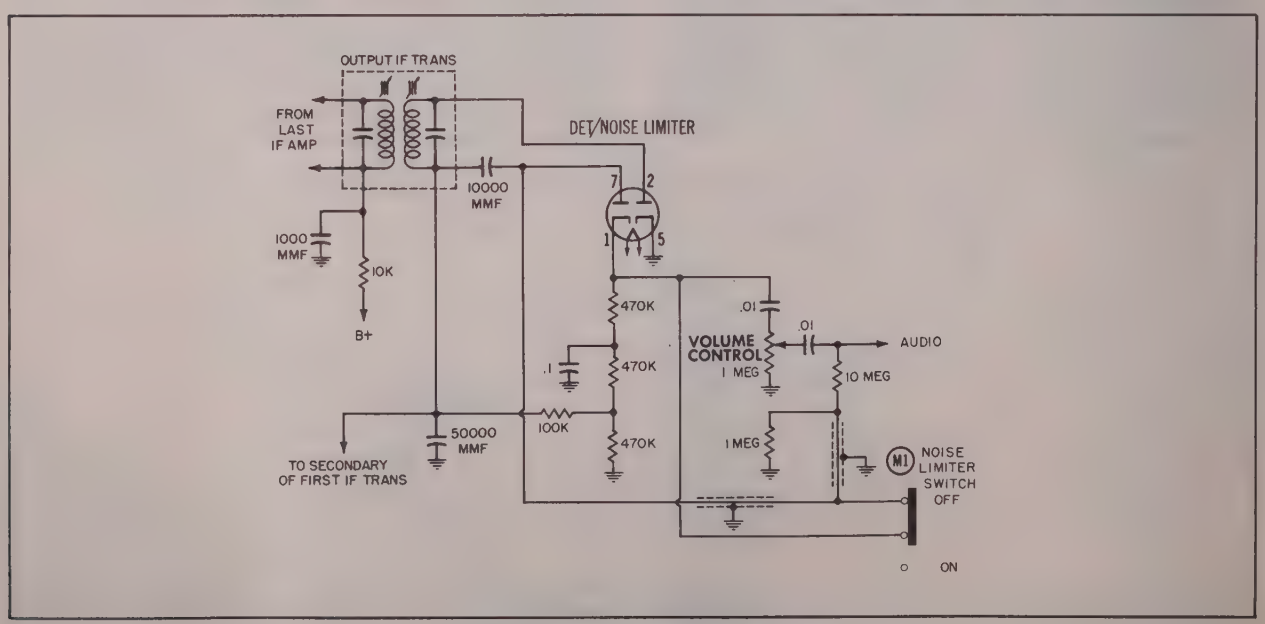


Fig. 7. A typical noise-limiter circuit.

will not go into their pros and cons during this discussion. The noise-limiter diode may be separate or within the same envelope as the detector/AVC diode, as shown in Fig. 7. Notice that this noise-limiter circuit can be switched into or out of the circuit. This arrangement is used in quite a few transceivers.

Some noise-limiting circuits are simpler than others—for example, the peak-limiting circuit in Fig. 8. Here, the series combination of neon bulb M1 and resistor R1 are shunted across the primary of the last IF transformer. The normal voltage developed across the primary of T1 is not sufficient to ionize the neon bulb. However, a high noise peak will "fire" this bulb and effectively short the primary of T1 for the duration of the noise pulse. Naturally no signals at all are fed to the following stages at that instant—noise or otherwise. This leaves the output signal with a series of random "holes" where noise ordinarily would have been. The length of time the signal is killed, however, is so instantaneous that it cannot be detected by the human ear.

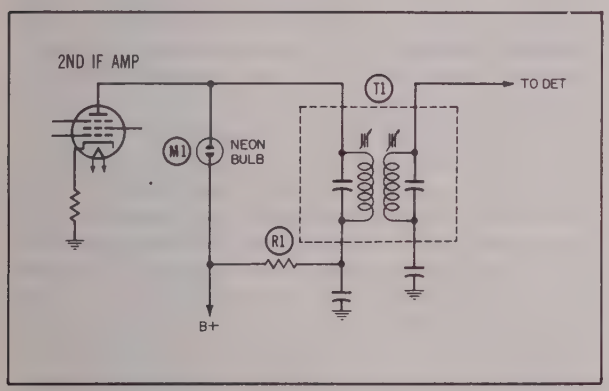


Fig. 8. A simple noise-clipping circuit using a neon bulb.

Following the signal on through the block diagram in Fig. 4, we see that the detector output feeds the audio amplifier and in turn the output stage and speaker. The latter two stages are straightforward and require no discussion, other than to mention that a squelch circuit comprising a separate vacuum-tube stage is usually employed to disable the first audio stage while no signal is being received. This eliminates the background noise normally heard during a no-signal condition. Such noise would be quite annoying to someone—a dispatcher, for example—who had to listen to it all day. By means of a squelch circuit, the first audio stage is disabled when no signal is present, and before this stage can be unblocked, the strength of the incoming signal must be above a certain level determined by the setting of the Squelch control. The two basic systems are known as signal-operated and noise-operated squelch. In the former, the carrier must be of sufficient strength before the control action is terminated. In the latter system (noise-operated squelch), however, it is the reduction or disappearance of background noise while a signal is present that unblocks the audio stage. Signal-operated squelch is more commonly used in Class-D Citizens-band receivers.

Dual-Conversion Superheterodyne

The dual-conversion, or double superheterodyne, resembles the superheterodyne just discussed, except that it has an additional conversion stage following the first. Generally, only the oscillator in the first conversion stage is crystal controlled. The signal at the output of this circuit is called the "high" IF, and the output of the converter stage that follows is the "low" IF. The dual-conversion circuit provides somewhat better selectivity and image rejection than the single-conversion configuration.

Single- and Multichannel Transceivers

Some CB transceivers have provision for only one crystal; hence, only one channel can be used at a time. This does not mean, however, that this is the only channel on which it can operate. Actually this equipment can be made to operate on any one of the 22 or 23 Class-D channels by merely changing crystals and possibly retuning slightly. The term "single-channel" simply means that only one channel is *readily* available for operation. In equipment designed for multichannel operation there are normally anywhere from two to six channels that can be switched into operation immediately. Generally, two crystals are employed for each channel—one each for the receiver and transmitter oscillators. Most transceivers are designed so that turning the selector knob to the desired channel automatically selects the proper transmitter and receiver crystals for that channel. Another type of multichannel CB transceiver has provision for switching the transmitter and receiver channels separately. This arrangement makes cross-channel operation possible, whereby a transceiver can transmit on one channel and receive on another. Incidentally, cross-band operation often is practiced in CB radio. Here, for example, the operator of a Class-D station can communicate with a Class-A station, provided the Class-A station is equipped with a Class-D receiver, and the Class-D station with one capable of tuning in the Class-A station. Naturally, the Class-A station must also be operating on AM.

Fixed-Tuned and Tunable

In addition to the fixed-tuned single- and multichannel receivers discussed so far, there are those which are continuously tunable, and some which are a combination of the fixed-tuned and tunable. Transceivers of the tunable variety may cover twenty two of the Class-D channels or may also include the twenty third, which was added after the original twenty two. The combination fixed-tuned/tunable transceivers employ one or more crystal-controlled channels and also have provision for continuously tuning the receiver oscillator. The transmitter oscillator, however, remains crystal controlled. Fig. 9 shows the typical oscillator circuit employed for such an arrangement. The channel selector has five positions, four of

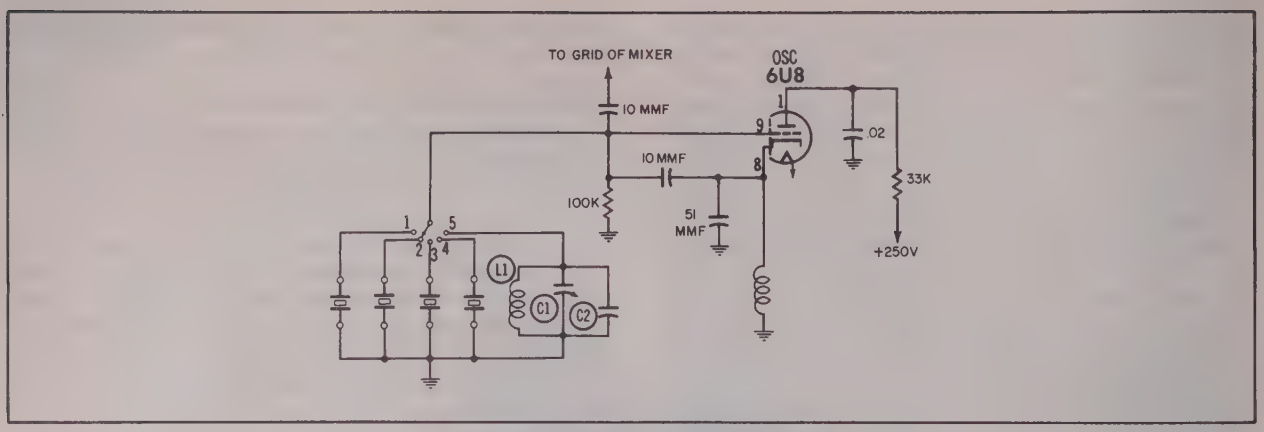


Fig. 9. A combination fixed-tuned/tunable oscillator circuit.

which provide crystal-controlled operation on any four of the Class-D channels. In the fifth position, the oscillator becomes tunable over the entire range of Class-D frequencies by means of the circuit combination L1, C1, and C2. C1 is the tuning capacitor.

TRANSMITTERS

As mentioned previously, some CB transmitters use an RF power amplifier after the oscillator while others merely employ a power oscillator. Hence, transmitter circuitry is generally much simpler than that of receivers. In addition to the two-stage audio amplifier used in practically all applications, an oscillator of some type must be employed in order to generate the RF carrier. If this is the only RF stage, the audio will be superimposed on its signal. More often than not, however, an RF power amplifier is employed following the oscillator. Fig. 10 shows a single pentode stage which serves as both transmitter oscillator and RF power amplifier. Some transmitters in the Class-D citizens-band equipment not only have a separate oscillator and power amplifier, but also employ a buffer or frequency-doubler stage between them.

FCC Type Approval of Noncrystal-Controlled Equipment

Practically all Citizens-band transmitters are crystal controlled in order to insure frequency stability and thus legal operation. Any that are not, and this is true for much of the Class-B equipment, must have what is known as an FCC type-approval number. This number is stamped on an attached nameplate. Type approval signifies that the equipment adheres to FCC technical requirements. Before CB equipment with noncrystal-controlled transmitters can be approved by the FCC, it must pass numerous tests. Manufacturers desiring to obtain type approval for a piece of radio equipment must submit a written request to the FCC. Generally this request will not be considered unless at least 100 units are to be manufactured.

Upon approval of a request, a working model of the transceiver must be submitted to the FCC laboratory, where it will undergo a series of tests to determine its performance under various conditions, such as prolonged exposure to humidities ranging from 20% to 95% and temperatures from 0° to 125°F. Other tests include the effect on operation when the position of the equipment itself and surrounding objects is changed, and also the

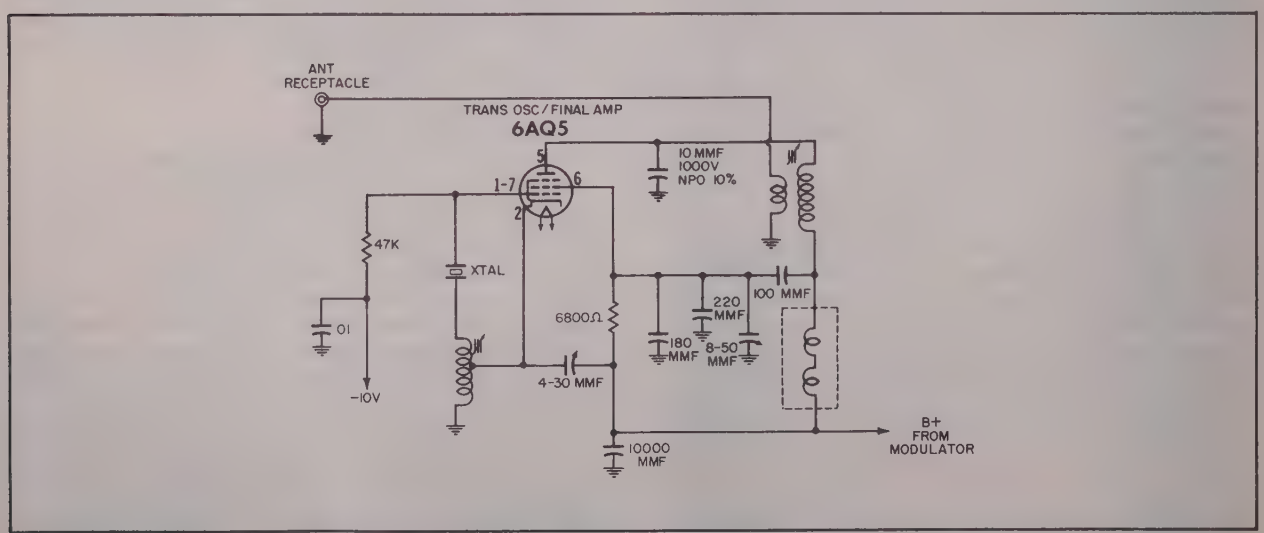


Fig. 10. A combination transmitter-oscillator/final-amplifier stage.

effect of voltage variations encountered in normal usage. These tests are not always performed by the Commission itself, but by a cooperating governmental organization. Before any piece of equipmen is accepted or rejected for type approval, the test results are forwarded to the FCC, which notifies the manufacturer of the results. If this unit is acceptable, all production models must duplicate it as closely as possible, and the design must not be changed without approval from the Commission. For his own satisfaction, a manufacturer may request type approval even for crystal-controlled CB equipment.

Transmitter Efficiency

One of the major factors that limit the communicating range of CB equipment is the low plate power input of the transmitter. The maximum power limits for the various classes of CB operation are set forth in the FCC regulations and cannot legally be exceeded. CB equipment which meets Class-A specifications can operate with up to 60 watts' plate power input (product of the plate voltage and current in the final RF stage of the transmitter). The technical requirements of Class-A equipment are quite rigid, however. A large percentage of this equipment operates with less than maximum power input because (1) range is not proportional to transmitter power, and (2) the savings in the cost of producing lower-powered equipment can be passed on to the purchaser. All other classes of equipment (B, C, and D) are limited to a maximum power input of 5 watts, except Class-C operation on 27.255 mc, where a power input of 30 watts is permitted. This frequency is shared with the Class-D service, where the legal power limit is 5 watts.

The amount of output power obtained from a transmitter with any given amount of input is dependent on the efficiency of the final RF stage. Generally, 50% efficiency is considered average; some transmitters approach 70%. Much of course depends on circuit design and the engineering of the equipment. A CB transmitter using the full 5-watt input power is generally capable of producing about 3 watts' RF output.

We are speaking here only of transmitter output. The amount of power actually radiated from the antenna is an entirely different matter. Here the efficiency of the antenna system must also be considered. (The system comprises the antenna itself and the transmission line, plus any coupling, matching, or loading devices connected to either end.) The inability of any one of these components to fulfill its intended function will degrade the performance of the entire two-way system. More often than not, a good antenna can compensate for losses incurred in either system.

Frequency Tolerance

The frequency tolerance for transmitter operation depends not only on the class of station, but also on the type of operation (i.e., mobile, fixed, or base) and on the plate input power of transmitter. For example, the frequency tolerance of a Class-A fixed or base station is .001%, whereas a mobile station in the same class is allowed as much as .005% frequency tolerance, provided the plate power input does not exceed 3 watts. If it does, the legal tolerance is .001%, the same as for base and fixed stations. Class-B equipment is authorized for mobile operation only (although it can be located at fixed points), and must conform to a frequency tolerance of 0.5% if the transmitter input power is 3 watts or less, and 0.3% over 3 watts. With Class-D equipment, however, the frequency tolerance remains the same (.005%), regardless of the type of operation or the plate power input of the transmitter.

TRANSISTORIZED TRANSCEIVERS

Since initiation of the Class-D service, many transistorized CB units have been produced. Some employ transistors only in the power supply; others use them throughout. Most all-transistorized CB transceivers are of the small portable variety (Fig. 11).

Fig. 11. Example of an all-transistor Class-D transceiver.

These units operate from self-contained batteries and generally operate with an input power of approximately 2 watts or less. In fact, many operate with less than 100 milliwatts. When the power input of a transceiver is kept at or below this figure, no FCC license is required, provided such equipment is used only for communications with similar unlicensed units. Most portable Class-D transceivers employ a built-in telescopic whip an-

tenna and are designed for close-range communications.

The self-contained power supply generally consists of several batteries to provide the necessary operating power (generally 9.6 volts). These batteries may or may not be chargeable. Two major advantages of transistorized equipment are their compactness and low power consumption. Practically all transistorized equipment employs a superheterodyne receiver, and its operation is principally the same as that of its vacuum-tube counterpart. There are, of course, the normal variations in component and voltage values that can be expected with transistors. Also, only a few of the pocket-size transceivers employ a squelch circuit.

KITS

Many CB two-way radios are available as kits, and some may be purchased either as a kit or factory wired. Most transceiver kits can be easily assembled by persons with little or no previous experience. One type of kit comprises individual components which must be properly connected together to form the completed circuit. In another type of kit, all stages are in the form of prewired subassemblies. All the builder has to do is mount and interconnect the various subchassis. The critical circuits (such as the oscillator) of practically all CB transceiver kits are wired and tuned at the factory. This is done to comply with the FCC regulations which prohibits anyone other than the holder of a second-class or higher commercial radio license from making any repairs or adjustments which could cause illegal operation.

The simplified diagrams supplied with most kits make it difficult to go wrong, although this does happen from time to time. One of the biggest pitfalls—especially among inexperienced builders—seems to be poor soldering. A joint that has too much solder is just as bad, if not worse, than one not having enough. It would be far worse for a blob of solder to run down a terminal and short B+ to ground, than to have a high-resistance (loose) connection caused by insufficient solder or heat ("cold" soldered joint). Loose connections generally cause intermittent operation, and while often difficult to track down, the loose connection rarely damages other components. A short, on the other hand, can do considerable damage.

OTHER EQUIPMENT

There are several other devices used in CB radio which are not nearly as common as the transceiver, but are still worthy of mention. One is the converter; it is primarily a "front-end," or RF tuner, capable of converting radio signals at one frequency into signals of a different frequency which can be accepted by another type of radio equipment. Generally a converter must be used in conjunction with a standard broadcast receiver before its signals can be heard. Converters are available in a number of makes and models and are designed to cover just about any band of frequencies, including CB. Some are designed for mobile operation and are used with the regular AM car radio. Other types operate from the household power outlet and are used with, say, a table-model radio. The converter is a handy item when an extra receiver is needed or when you desire to monitor transmissions in another CB band. Also, a converter may be employed where a transmitter but no receiver is available.

Another interesting device is the transverter, which is simply a combination transmitter and converter. Here again, a standard AM broadcast receiver also is employed to make the radio signals audible. The transmitter section is generally complete in itself; only the receiver requires the support of additional stages.

Some Class-A CB equipment used in systems where a number of units are operating is provided with a coded calling system known as tone squelch. This system is designed to reject all transmissions other than those within the controlled network. Each station within this network transmits a coded tone in addition to the voice signal. This tone may be present for a few seconds (just after the mike button is depressed) or a continuous tone (made inaudible by filters) present during the entire transmission. Each receiver is equipped with a decoder circuit, and only when the correct tone is received will the transmitted message be heard. Hence, the coded tone of the master station will permit communication with all satellite units, but transmissions from other radio equipment outside the network will not be heard. Furthermore, most systems are designed so that by means of the proper coded tone, any one or all of the satellite stations within this network can be alerted. In addition, a transmission from any satellite station will unblock the entire system and permit all other stations to hear the message.

SCHEMATICS

A schematic diagram presents, at a glance, a clear picture of the transceiver and its circuits. Moreover, before you can effectively service any type of two-way radio, especially an unfamiliar one, such a diagram is essential. The following section contains schematics of current Citizens-band equipment, together with complete service data, including parts lists, tube and component layout and identification, and alignment instructions.

MODEL SQ-9W

ARKAY MODELS
SQ-9, SQ-9W

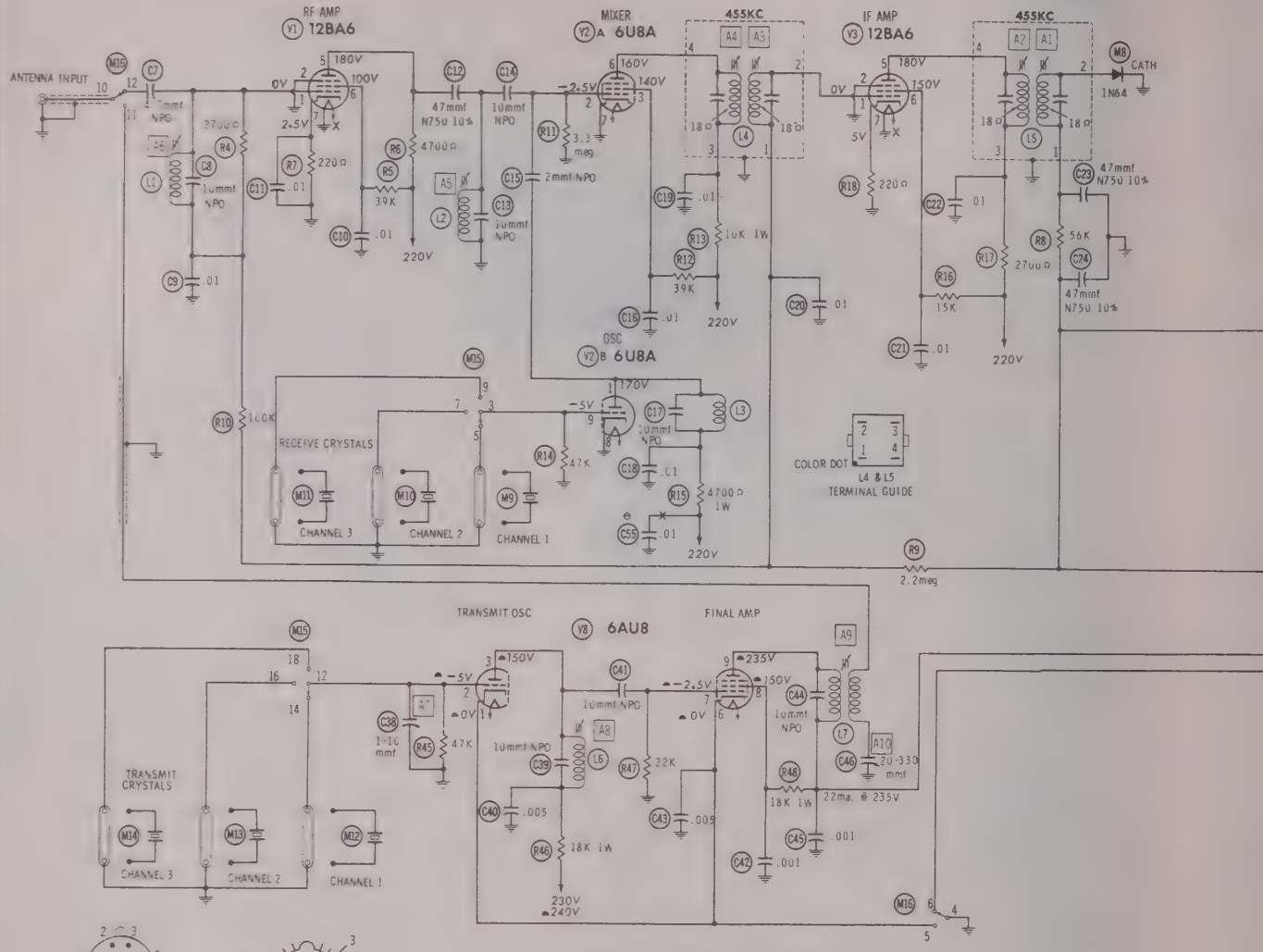
TRADE NAME	Arkay Models SQ-9, SQ-9W
MANUFACTURER	Arkay International, Inc., 88 — 06 Van Wyck Expressway, Jamaica 18, N. Y.
TYPE SET	AC-Battery Operated Crystal Controlled 8 Tube Citizens Band Transmitter-Receiver
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 58 Watts, .58 Amp. @117 Volts AC
FREQ. RANGE	Any 3 of Citizens Band Channels 1 thru 22 4 Amp. @12.6 Volts DC

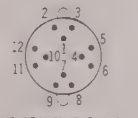
ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KZ983





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	2.4meg	0Ω	FIL	FIL	†5200Ω	†39K	220Ω		
V2	6U8A	†5200Ω	3.3meg	†39K	FIL	FIL	†10K	0Ω	0Ω	47K
V3	12BA6	2.3meg	0Ω	FIL	FIL	†3200Ω	†15K	220Ω		
V4	12AT7	†220K	400K	2200Ω	FIL	FIL	80K	80K	2.1meg	NC
V5	12AX7	480K	1.1meg	7000Ω	FIL	FIL	†122K	950K	10K	NC
V6	12AX7	†242K	47K	3300Ω	FIL	FIL	▲†292K	0Ω	0Ω	NC
V7	12AQ5	NC	500Ω	FIL	FIL	†600Ω	†250Ω	270K		
V8	6AU8	▲0Ω	47K	†18K	FIL	FIL	▲0Ω	22K	†18K	†650Ω

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "TRANSMIT" POSITION.
† MEASURED FROM OUTPUT OF M2.

NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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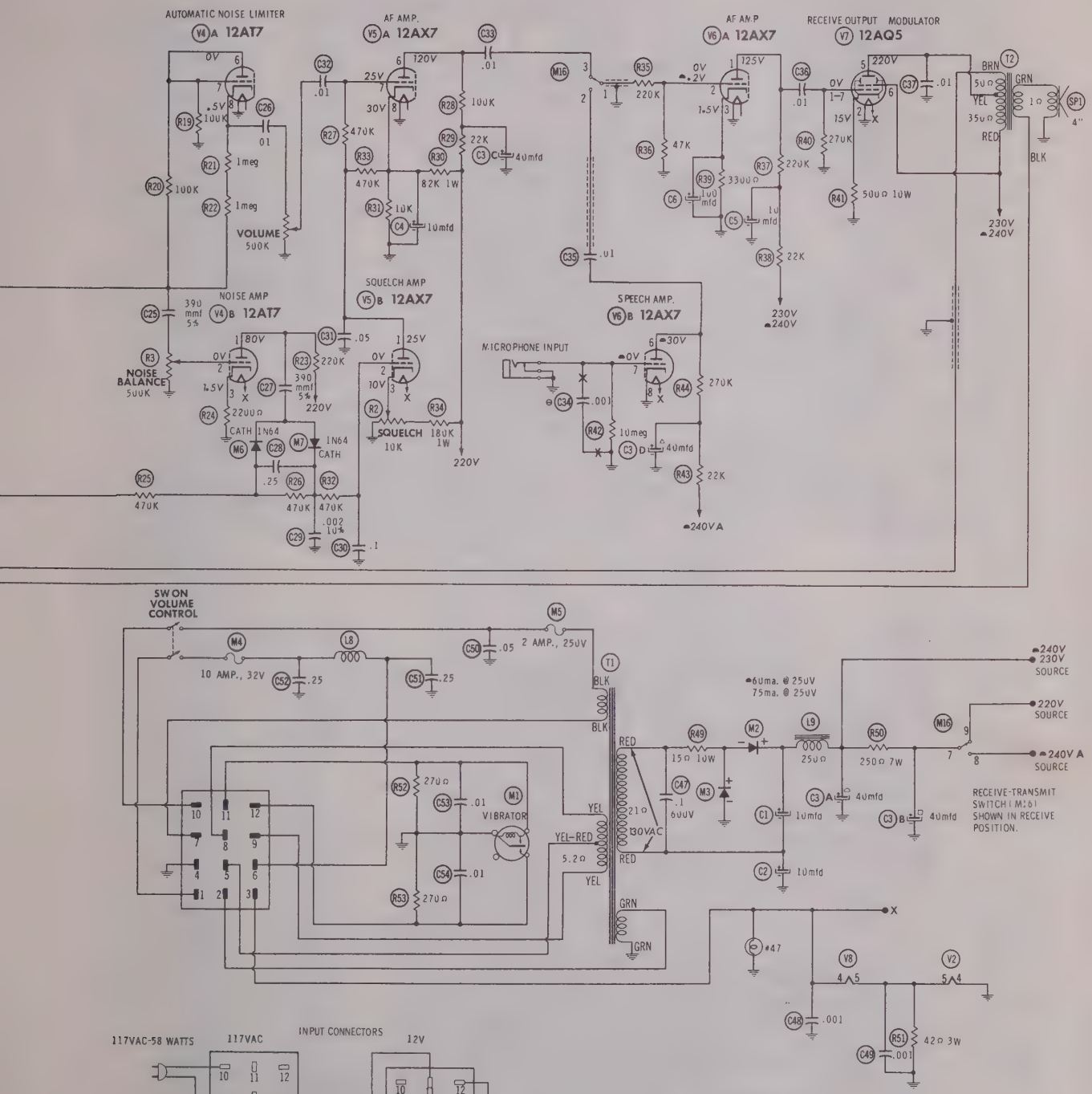
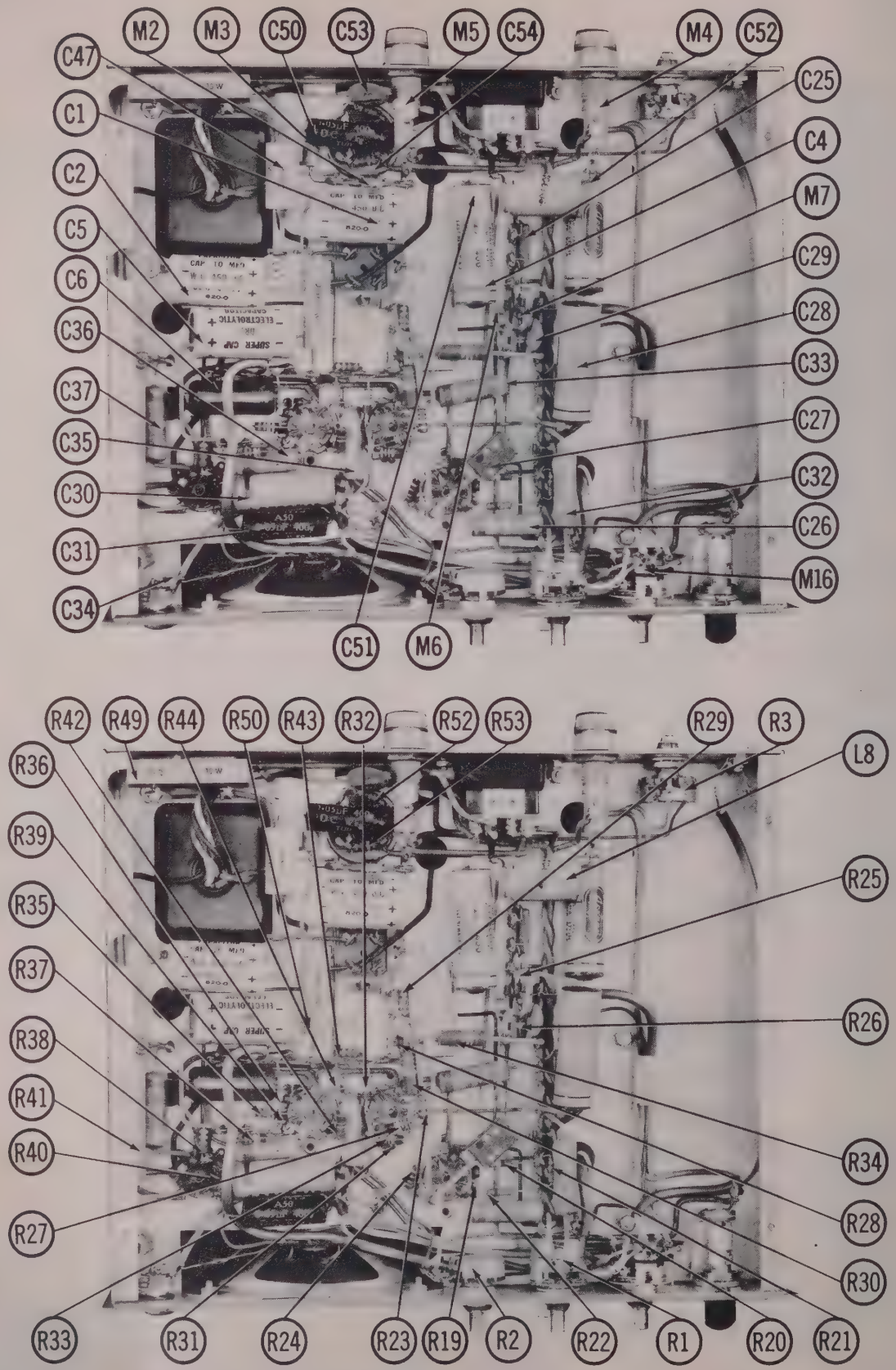


NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

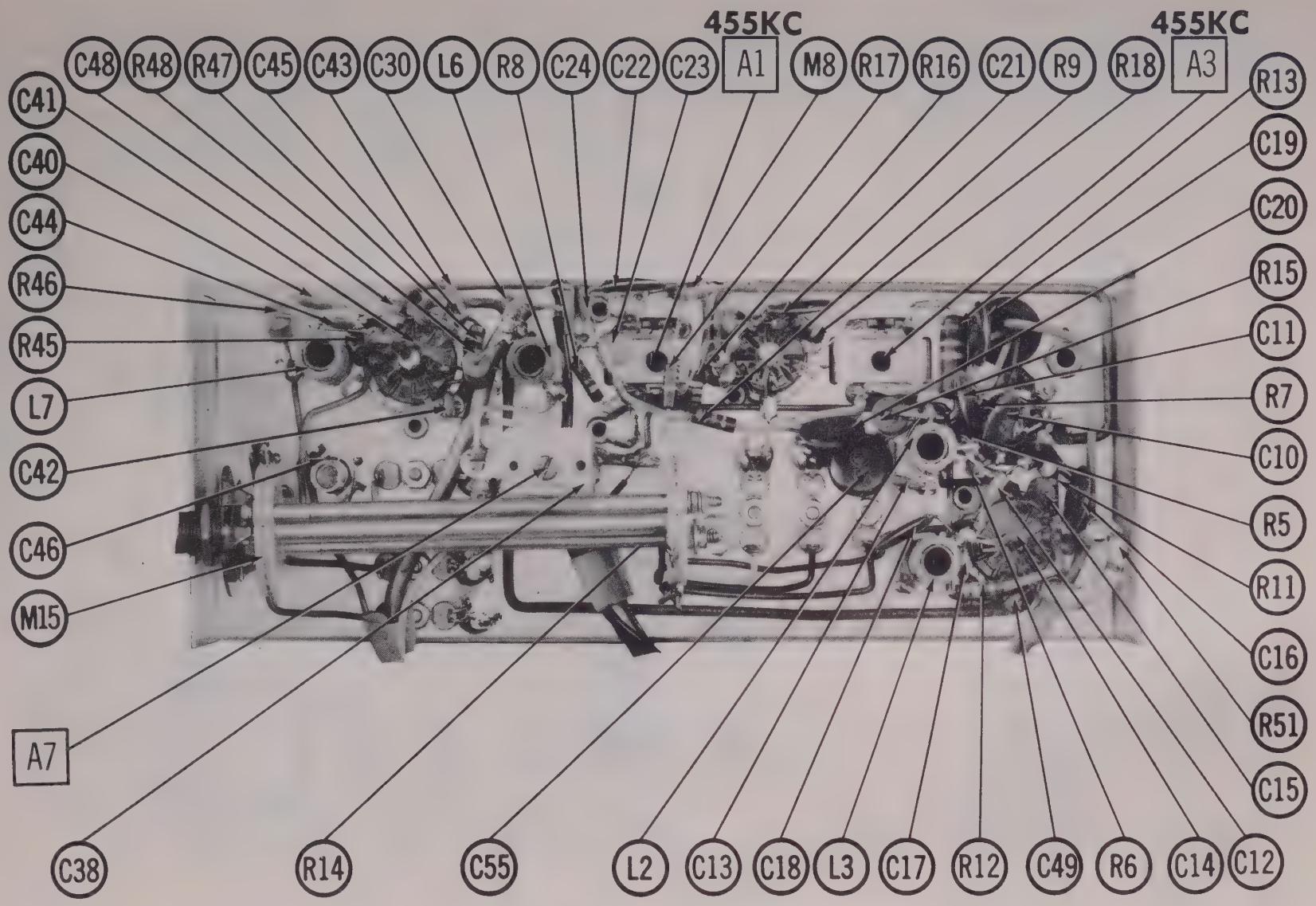
NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.711).

ARKAY MODELS SQ-9, SQ-9W



CHASSIS-BOTTOM VIEW



RF-IF SUBCHASSIS-BOTTOM VIEW

ALIGNMENT INSTRUCTIONS

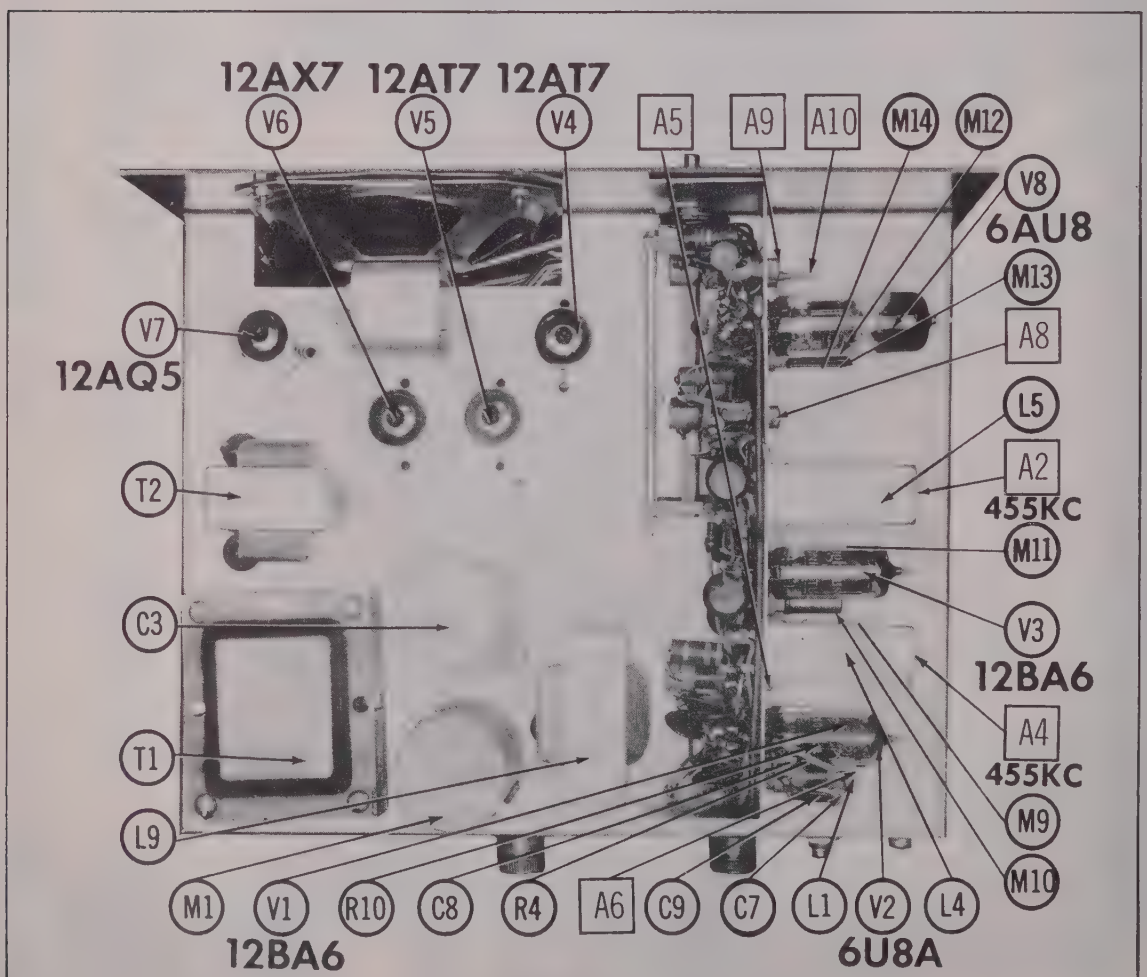
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

RECEIVER ALIGNMENT

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
High side thru .001mfd to antenna input jack. Low side to chassis.	455KC (400% Mod.)	Channel 11	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
"	Channel 11 Freq.	Channel 11	"	A5, A6	Adjust for maximum output. If crystals are closely spaced, use center channel frequency.

TRANSMITTER ALIGNMENT

Adjust A7 to center channel frequency using a Frequency meter.
Connect the DC probe of VTVM to pin 7 (grid) of Final. Common to Chassis. Adjust A8 for maximum deflection.
Recheck A7.
Adjust A9 and A10 for maximum output using a Field Strength meter.



CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V1	RF Amplifier	12BA6
V2	Mixer-Osc.	6U8A
V3	IF Amplifier	12BA6
V4	ANL-Noise Amplifier	12AT7
V5	Squelch Amp.-AF Amp.	12AX7
V6	AF Amp.-Speech Amp.	12AX7
V7	Rec. Output-Modulator	12AQ5
V8	Trans. Osc.-Final Amp.	6AU8

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ARKAY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	10	450		PRS1720	BR1045	QT1-6	TC72	TD-10-450	TVA-1705
C2	10	450		PRS1720	BR1045	QT1-6	TC72	TD-10-450	TVA-1705
C3A	▲40	450		AFH3-39		XC3-40			TVL-2764
B	■40	450		PRS1750		QT1-14			TVA-2740
C	40	450							
D	▲40	450							
C4	10	450		PRS1720	BR1045	QT1-6	TC72	TD-10-450	TVA-1705
C5	10	450		PRS1720	BR1045	QT1-6	TC72	TD-10-450	TVA-1705
C6	100	25		PRS1270	BBR100-25	QT1-23	TC2501	TD-100-25	TVA-1207

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	4.7 NPO		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C8	10 NPO		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C9	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C13	10 NPO		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C14	10 NPO		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C15	2 NPO		NPO-DI 2.0	DTZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C16	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	10 NPO		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C18	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C24	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C25	390 5%		1469-00039		5R5T39	CM-19B-391J		MS-339
C26	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C27	390 5%		1469-00039		5R5T39	CM-19B-391J		MS-339
C28	.25 400V		P488N-25		CUB4P25	4DP-5-254	GEM-4025	4TM-P25
C29	.002 10%		DI-2000		5R5D2	CCD-202	GP220	10TS-D20
C30	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C31	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C32	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C33	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C34	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-P10
C36	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-P10
C37	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-P10
C38	1-10			829-10				
C39	10 NPO		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C40	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C41	10 NPO		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C42	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C43	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C44	10 NPO		NPO-DI 10	DTN-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C45	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C46	20-330							
C47	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C48	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C49	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C50	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C51	.25 400V		P488N-25		CUB4P25	4DP-5-254	GEM-4025	4TM-P25
C52	.25 400V		P488N-25		CUB4P25	4DP-5-254	GEM-4025	4TM-P25
C53	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C54	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C55	.01	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ARKAY PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	CM25966	B-60-S	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-20	76-2	US-27	Power Off-On
R2A	10K	½		B-15	A47-10K-Z	Q13-116	U18	Squelch
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R3A	500K	½		B-59	A47-500K-S	Q11-133	U50	Noise Balance
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No	WORKMAN TV PART No.	REMARKS
R4	2700Ω			
R5	39K			
R6	4700Ω			
R7	220Ω			
R8	56K			
R9	2.2meg			
R10	100K			
R11	3.3meg			
R12	39K			
R13	10K 1W			
R14	47K			
R15	47K 1W			
R16	15K			
R17	2700Ω			
R18	220Ω			
R19	100K			
R20	100K			
R21	1meg			
R22	1meg			
R23	220K			
R24	2200Ω			
R25	470K			
R26	470K			
R27	470K			
R28	100K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R29	22K			
R30	82K 1W			
R31	10K			
R32	470K			
R33	470K			
R34	180K 1W			
R35	220K			
R36	47K			
R37	220K			
R38	22K			
R39	3300Ω			
R40	270K			
R41	500Ω 10W			
R42	10meg			
R43	22K			
R44	270K			
R45	47K			
R46	18K 1W			
R47	22K			
R48	18K 1W			
R49	15Ω 10W	PW10-15	10W-SQ-15Ω	
R50	250Ω 7W	PW7-250	7W-SQ-250	
R51	42Ω 3W	PW3-42	3W-SQ-42	
R52	270Ω			
R53	270Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ARKAY PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Ant.						
L2	RF						
L3	Osc. Plate						
L4	Input IF		BC-352	12-C1	RTC-8632	T607	
L5	Output IF		BC-353	12-C2	RTC-8633	T608	
L6	Osc. Plate						
L7	Final Plate						
L8	Hash Choke						

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	ARKAY PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L9	.075A	250Ω	9.5 HY			C-1709		C-7X	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	ARKAY PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .58A or 12.6VCT @ 2.2A DC	130V @ .260A AC	12.6V @ 1.8A (AC Only)						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	ARKAY PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7500Ω Tap @ 12.5%	3-4Ω						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ARKAY PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω		4A15	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				ARKAY PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12	115v		6301	G1601	6301	

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	ARKAY PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M2	075A		1N1763	F6	
M3	075A		1N1763	F6	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ARKAY PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M4	3AG	10A 32V			311010 (3AG 10A 32V)	155020	AGC 10	HKP
M5	3AG	2A 250V			312002 (3AG 2A 250V)	342001	AGC 2	HKD

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ARKAY PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M6	1N64			1N64	Squelch Rect.
M7	1N64			1N64	Squelch Rect.
M8	1N64			1N64	Detector

MISCELLANEOUS

ITEM No.	PART NAME	ARKAY PART No.	NOTES
M9	Crystal		Receive
M10	Crystal		Receive
M11	Crystal		Receive
M12	Crystal		Transmit
M13	Crystal		Transmit
M14	Crystal		Transmit
M15	Switch		Channel Selector (Rotary Type)
M16	Switch		Transmit - Receive (Rotary Type)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

MODEL CB-12

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

TRADE NAME	Bendix Models CB-6, CB-12
MANUFACTURER	Bendix Marine, 8211 Lankershim Blvd., North Hollywood, California
TYPE SET	AC or Battery Operated Crystal Controlled 8 Tube Citizens Band Transmitter-Receiver
POWER SUPPLY	CB-6: 110—120 Volts AC, 60 Cycles (or) 6 Volt Storage Battery CB-12: 110—120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery
RATING	50 Watts, .5 Amp. @117 Volts AC (or) 7.6 Amp. @6.3 Volts DC (or) 3.8 Amp. @12.6 Volts DC
FREQUENCY RANGE	Any 4 of Citizens Band Channels 1 thru 22

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools:

A1 thru A7, A9.. GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547

A8, A10..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

A11..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .001mfd to pin 2 (grid) of Mixer. Low side to chassis.	1650KC	Not Used.	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection on first peak as slug enters coil.
2.	Adjust A7 for maximum background noise.					

TRANSMITTER ADJUSTMENT

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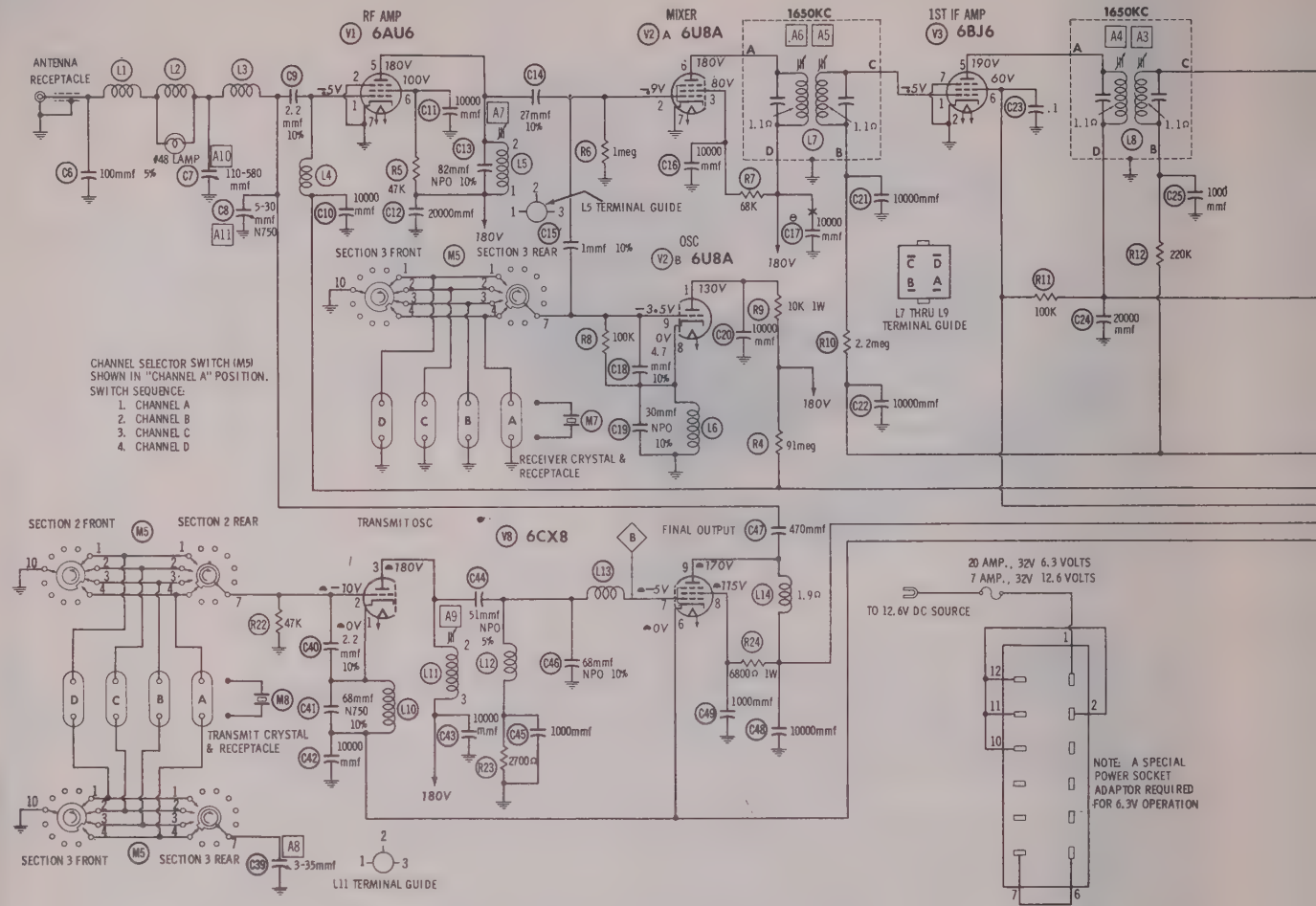
	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
1.	Connect a 52Ω dummy load to antenna jack.	Frequency meter.	A8	Adjust to frequency indicated on crystal (within 100~).
2.		Connect VTVM between point B (pin 7, V8) and chassis.	A9	Adjust for maximum deflection.
3.	Set A10 for maximum capacity.	Indicator Lamp.	A10, A11	Adjust alternately for maximum lamp brightness, ending with A11.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KZ429R

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AU6	3.6meg	0Ω	.2Ω	0Ω	†900Ω	†48K	0Ω		
V2	6U8A	†11K	1meg	†68K	.5Ω	.2Ω	†900Ω	0Ω	0Ω	100K
V3	6BJ6	3.6meg	0Ω	.2Ω	.5Ω	†430Ω	†100K	0Ω		
V4	6BA6	1.6meg	0Ω	.2Ω	.5Ω	†10K	†10K	0Ω		
V5	6AL5	2.4meg	†1.1meg	3Ω	.2Ω	1.1meg	0Ω	220K		
V6	6AV6	2.2meg	0Ω	0Ω	.2Ω	440K	3.6meg	†270K		
V7	6BQ5	NC	760K	150Ω	.5Ω	.2Ω	NC	†580Ω	NC	†2600Ω
V8	6CX8	▲.5Ω	47K	†900Ω	0Ω	.2Ω	▲0Ω	2700Ω	†7300Ω	†600Ω

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "TRANSMIT" POSITION.
† MEASURED FROM OUTPUT OF M1. NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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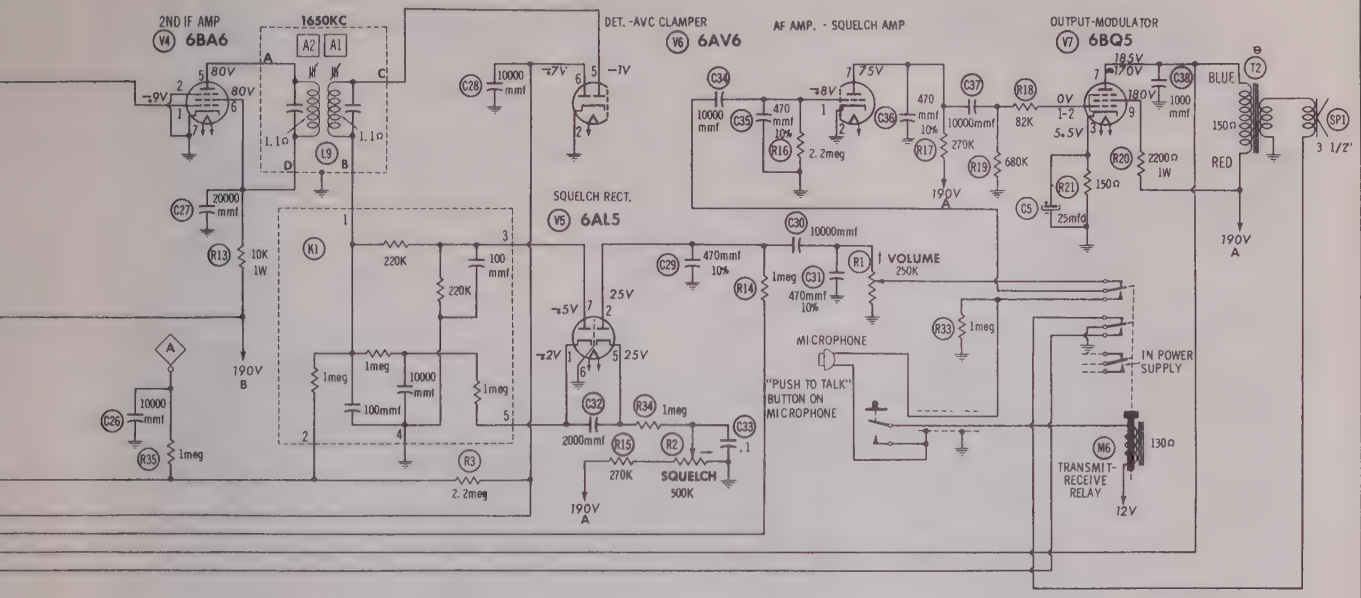
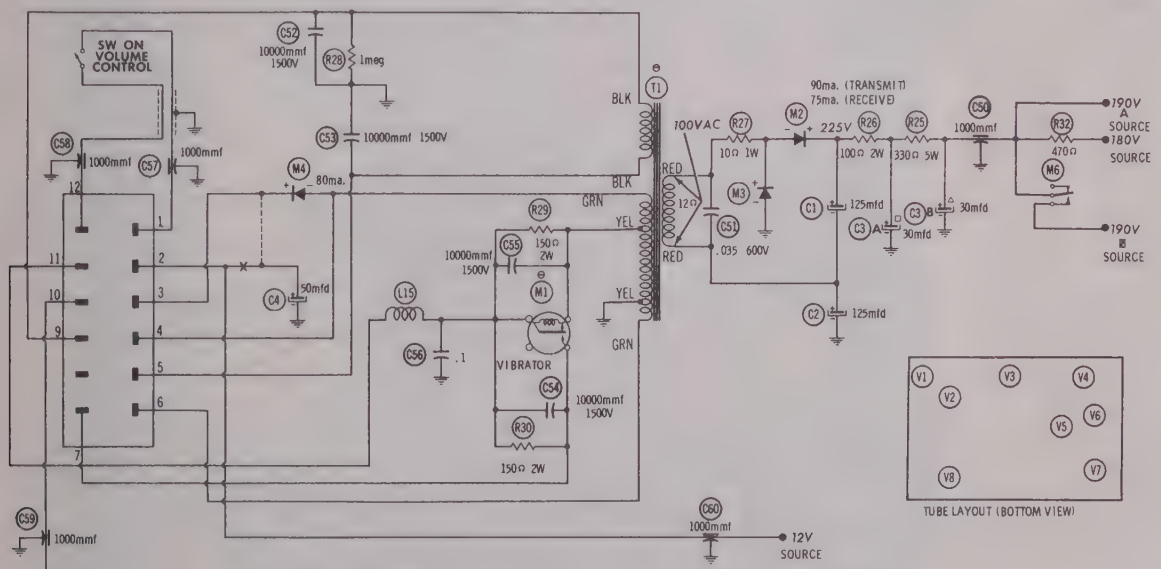




❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

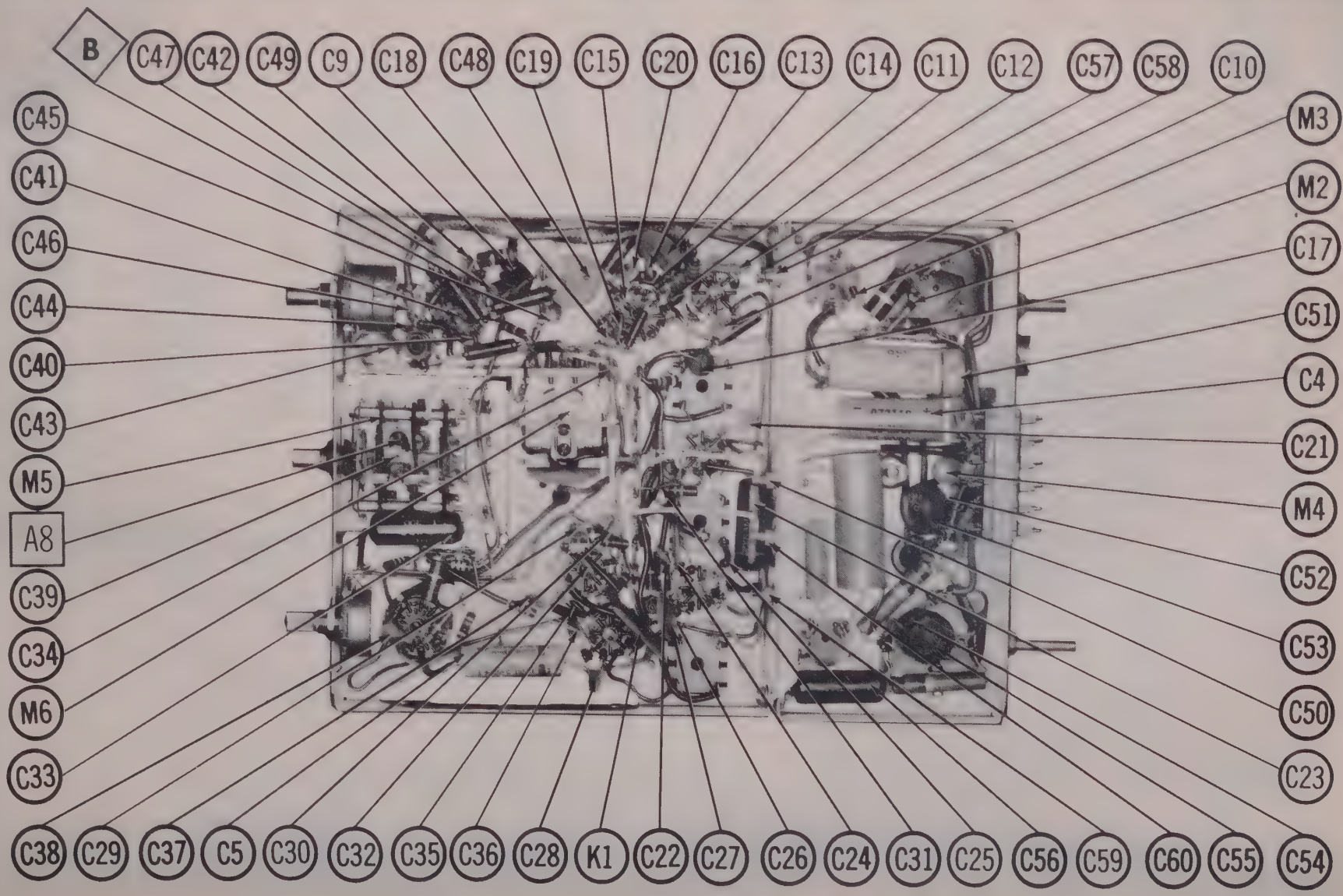
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

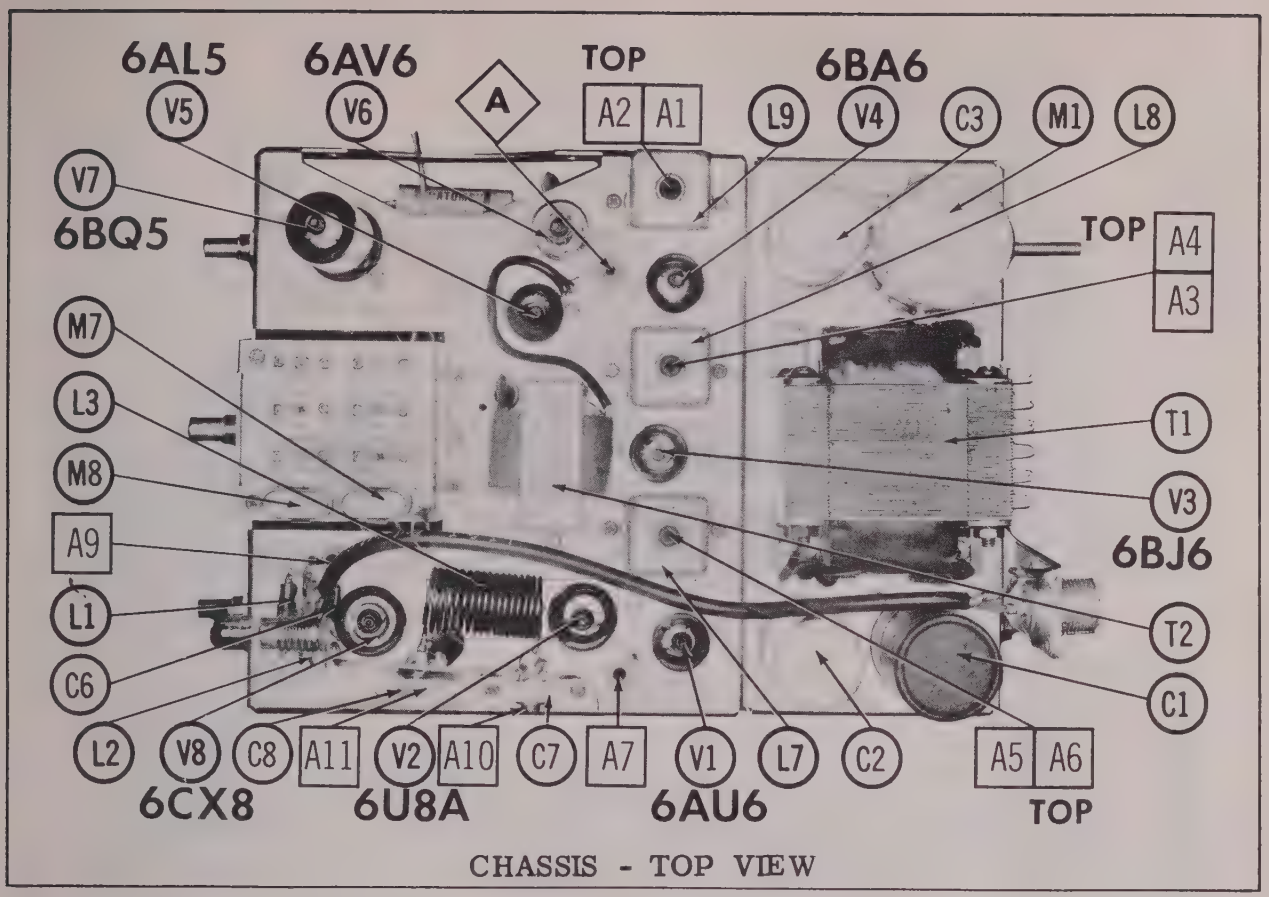
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

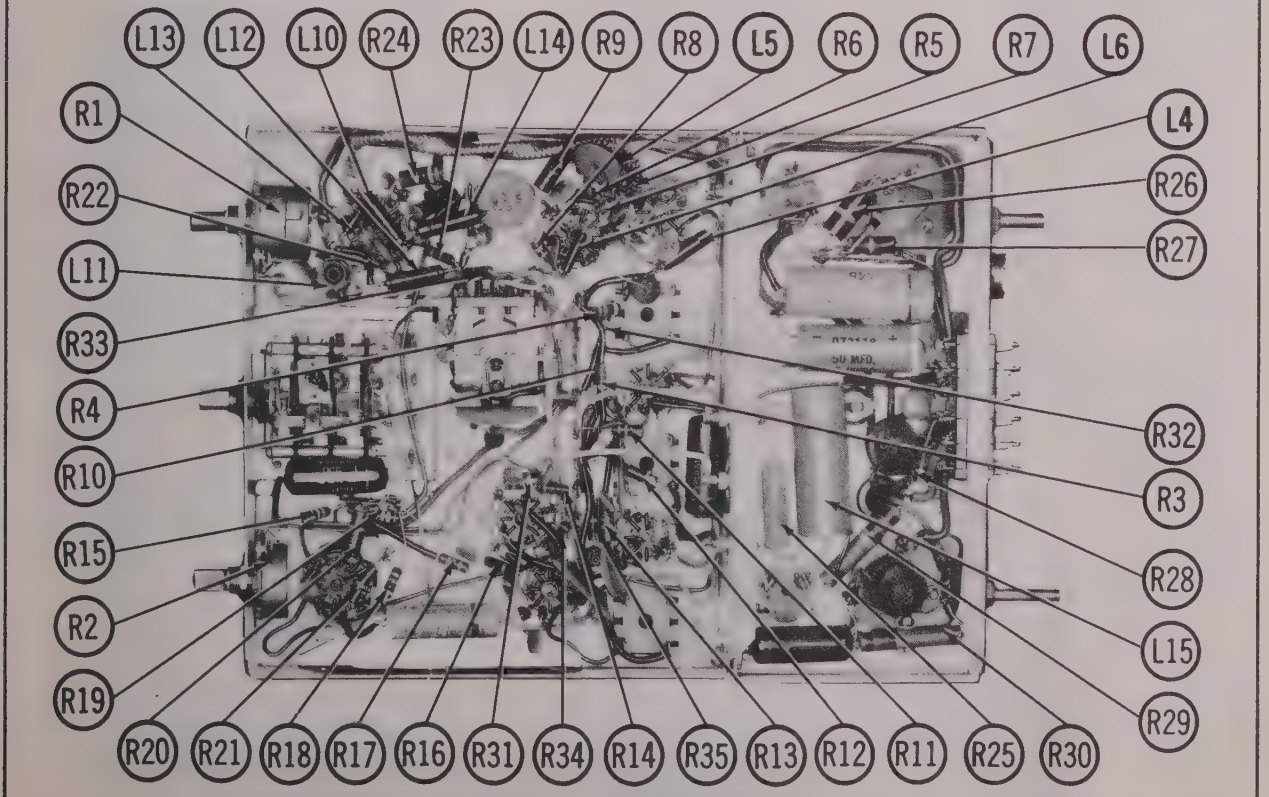
BENDIX MODELS CB-6, CB-12



CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.



CHASSIS - TOP VIEW



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	6AU6	V6	Det. -AVC Clamper- AF Amp. -Speech Amp.	6AV6
V2	Mixer-Osc.	6U8A			
V3	1st IF Amplifier	6BJ6	V7	AF Output-Modulator	6BQ5
V4	2nd IF Amplifier	6BA6	V8	Trans. Osc. -Final Amp.	6CX8
V5	Squelch Rectifier	6AL5			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	BENDIX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	125	200	073-018	AFHS1-22		XC1-14	FP122	TMS-1250	TVLS-1470*
C2	125	200	073-019	AFHS1-22		XC1-14	FP122	TMS-1250	TVLS-1470*
C3A	■30	350	073-026	AFH2-39	B0310	XC2-24	TP227.3	TMD-2385	TVL-2628
B	▲30	350							
C4	50	25	073-118	PRS1265	BBR50-25	QT1-15	TC29	TD-50-25	TVA-1206
C5	25	25	073-002	PRS1260	BBR25-25	QT1-11	TC26	TD-25-25	TVA-1205

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	100 5%		1469-0001	TCZ-100	22R5T1	CM-19B-101J	MCE235	MS-31
C7	110-580	#089-024						
C8	6-30 N750	#089-033						
C9	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C13	82 NPO 10%			DTZ-82	C10Q82C	CCTO-820	CNO-482	10TCC-Q82
C14	27 10%		DI-27	DD-270	L10Q27	CCD-270	GP427	10TS-Q27
C15	1 10%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	4.7 10%		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-4R7	10TCC-V47
C19	30 NPO 10%		NPO-DI 33	TCZ-30	C10Q3C	CCTO-300	CNO-433	10TCC-Q30
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C24	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C25	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C28	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C30	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C32	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C33	.1 200V	—	P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C34	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C36	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C39	3-35	#089-006				403		
C40	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C41	68 N750 10%		N750-DI 68	TCN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C42	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C43	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	51 NPO 5%			TCZ-51	C10Q51C	CM-19B-510J	CNO-450	10TCC-Q50
C45	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C46	68 NPO 10%		NPO-DI 68	DTZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C47	470		SI 470	D6-471	BYA10T47	CCD-471	B-347	10TS-T47
C48	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C49	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-102	5HK-D10
C50	1000		EF-001	MFT-1000		CCF-102	CT280A	
C51	.35 600V		P688N-33		DPMS6P33	6DP-6-334	GEM-6033	
C52	10000 1500V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C53	10000 1500V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C54	10000 1500V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C55	10000 1500V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C56	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C57	1000		EF-001	MFT-1000		CCF-102	CT280A	
C58	1000		EF-001	MFT-1000		CCF-102	CT280A	
C59	1000		EF-001	MFT-1000		CCF-102	CT280A	
C60	1000		EF-001	MFT-1000		CCF-102	CT280A	

Bendix Part Number
Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	BENDIX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	250K	½	052-081	B-51	A47-250K-Z	Q13-130	U44	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On
R2A	500K	½	052-082	B-59	A47-500K-S	Q11-133	U50	Squelch
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	2.2meg			
R4	91meg			
R5	47K			
R6	1meg			
R7	68K			
R8	100K			
R9	10K 1W			
R10	2.2meg			
R11	100K			
R12	220K			
R13	10K 1W			
R14	1meg			
R15	270K			
R16	2.2meg			
R17	270K			
R18	82K			
R19	680K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R20	2200Ω 1W			
R21	150Ω			
R22	47K			
R23	2700Ω			
R24	6800Ω 1W			
R25	330Ω 5W	PW5-330	5W-SQ-330	
R26	100Ω 2W			
R27	10Ω 1W			
R28	1meg			
R29	150Ω 2W			
R30	150Ω 2W			
R31	6.8Ω 1W			
R32	470Ω			
R33	1meg			
R34	1meg			
R35	1meg			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	BENDIX PART No.	REPLACEMENT DATA
K1	Noise Clipper Network	(2) 100mmf, 10000mmf, (2) 220K, (3) 1 meg	069-003	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		BENDIX PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	RF Choke(.56uh)	027-077	BC-560	4588	RTC-8513	
L2	Output Indicator	011-118				
L3	RF Choke	011-120				
L4	RF Choke(5.6uh)	027 028	BC-565	4609	RTC-8519	
L5	RF	012-414	TV-118	6171-A	RTC-8609	
L6	RF Choke(5.4uh)	027-004	SW-631	4609	RTC-8519	
L7	1st IF	014-030				
L8	2nd IF	014-030				
L9	3rd IF	014-030				
L10	RF Choke(5.6uh)	027-028	BC-565	4609	RTC-8519	
L11	Osc. Plate	012-415	TV-118	6171-A	RTC-8609	
L12	RF Choke(5.6uh)	027-028	BC-565	4609	RTC-8519	
L13	RF Choke (.47uh)	027-073		4588	RTC-8513	
L14	RF Choke(15uh)	027-032		4624	RTC-8524	
L15	Hash Choke(4uh)	027-010	BC-537	5219	RTC-9181	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	BENDIX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V Ⓐ .5A (AC Only)	100V Ⓐ .300A	12.6V Ⓐ 2A *	271-068 ①					① Part #271-071 used in 6-volt DC versions. * AC operation filament supply. Part of primary when used for DC operation.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	BENDIX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	2700Ω	3-4Ω	272-004 ①					① Alternate Part #272-034.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	BENDIX PART No.	QUAM PART No.	
SP1	3½"	PM	3-4Ω	152-016	3A070T	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				BENDIX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12V	115∿	117-003	6301	G1601	6301	12 Volt Versions
	Interrupter	6V	115∿	117-008	5301	1601	5301	6 Volt Versions

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	BENDIX PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M2	.090A	474-012	1N1763 *	40H *	SR500 *	* Silicon Type
M3	.090A	474-012	1N1763 *	40H *	SR500 *	
M4	.070A	474-004	1N1763*	40H *	SR500 *	

MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
M5	Switch	171-096	Channel Selector (Rotary Wafer Type)
M6	Relay	111-019	AC-12VDC Versions
	Relay	111-082	AC-6VDC Versions
	Microphone	113-015	
M7	Crystal		Receive
M8	Crystal		Transmit

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			BENDIX PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
	3AG	1A ① 250V			312001 (1A 250V)		AGC 1	
	3AG	1A ① 250V			312001 (1A 250V)		AGC 1	
		7A 32V ②			307007 (7A 32V)		SFE 7	
		20A 32V ③			3110202 (30A 32V)		SFE 20	

① 117 VAC Operation. ② 12VDC Operation. ③ 6VDC Operation.

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	3000798	Channel Selector
Knob	3000799	Volume, Squelch
Cabinet	465-066	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

MODEL TR-12 MODEL TR-910 MODEL TR-6

DEWALD MODELS
TR-6, TR-12, TR-910

TRADE NAME	DeWald Models TR-6, TR-12, TR-910
MANUFACTURER	DeWald, A Div. of United Scientific Laboratories Inc., 35-15 Thirty Seventh Ave., Long Island City 1, N. Y.
TYPE SET	AC (or) DC Operated 6 Tube Citizen Band Transmitter-Receiver
POWER SUPPLY	110 — 120 Volts AC, 50-60 Cycles (Optional Power Supply Model TR-6 or TR-12 is Available for 6 or 12VDC Operation)
RATING	45 Watts, .45 Amp. @117 Volts AC 6.6 Amp. @6.3 Volts DC 3.4 Amp. @12.6 Volts DC
TUNING RANGE	TRANSMITTER: Any 5 of Citizens Band Channels 1 thru 22 RECEIVER: Continuous Tuning thru all Citizen Band Channels 1 thru 22

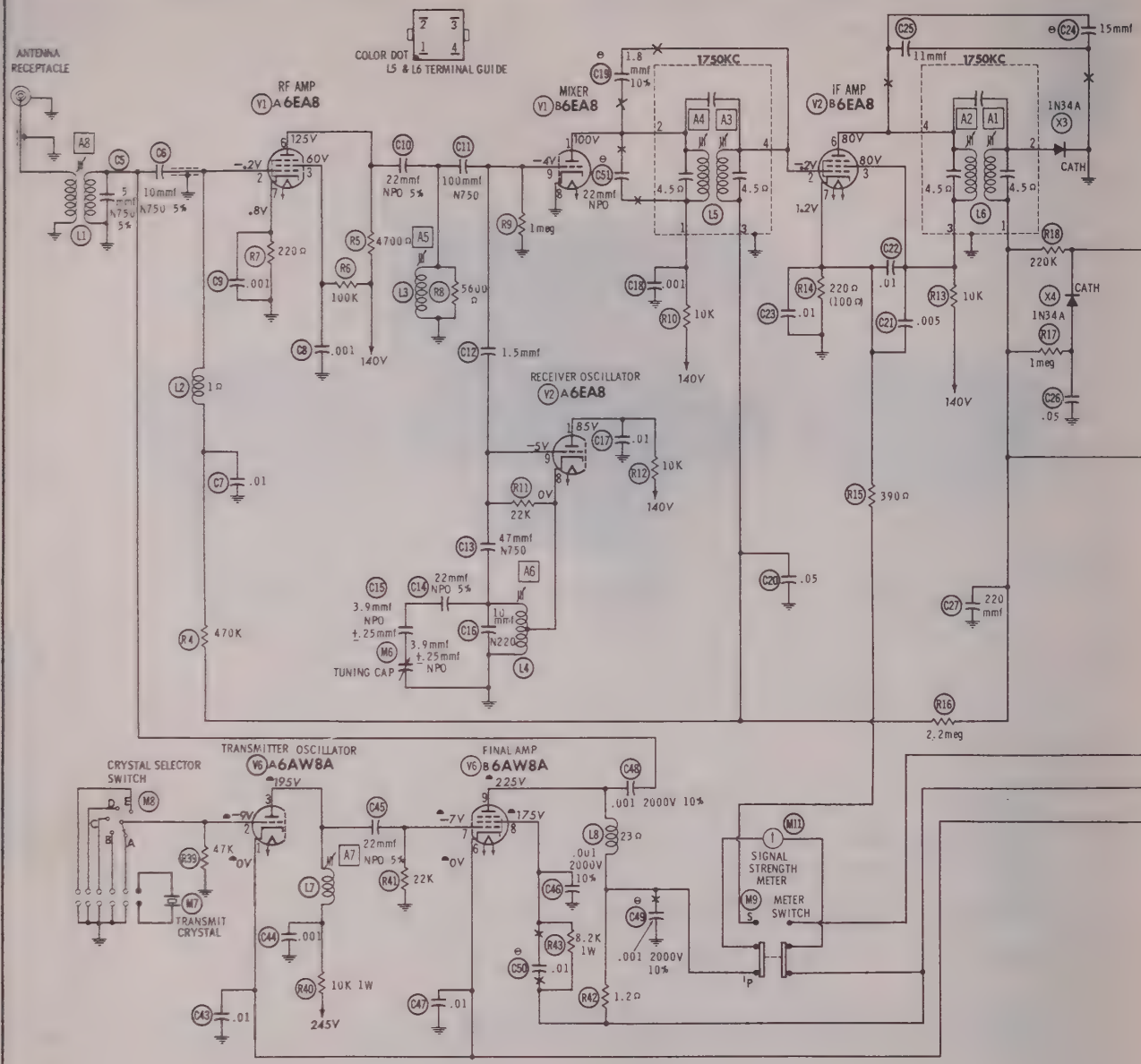
NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

LZ093



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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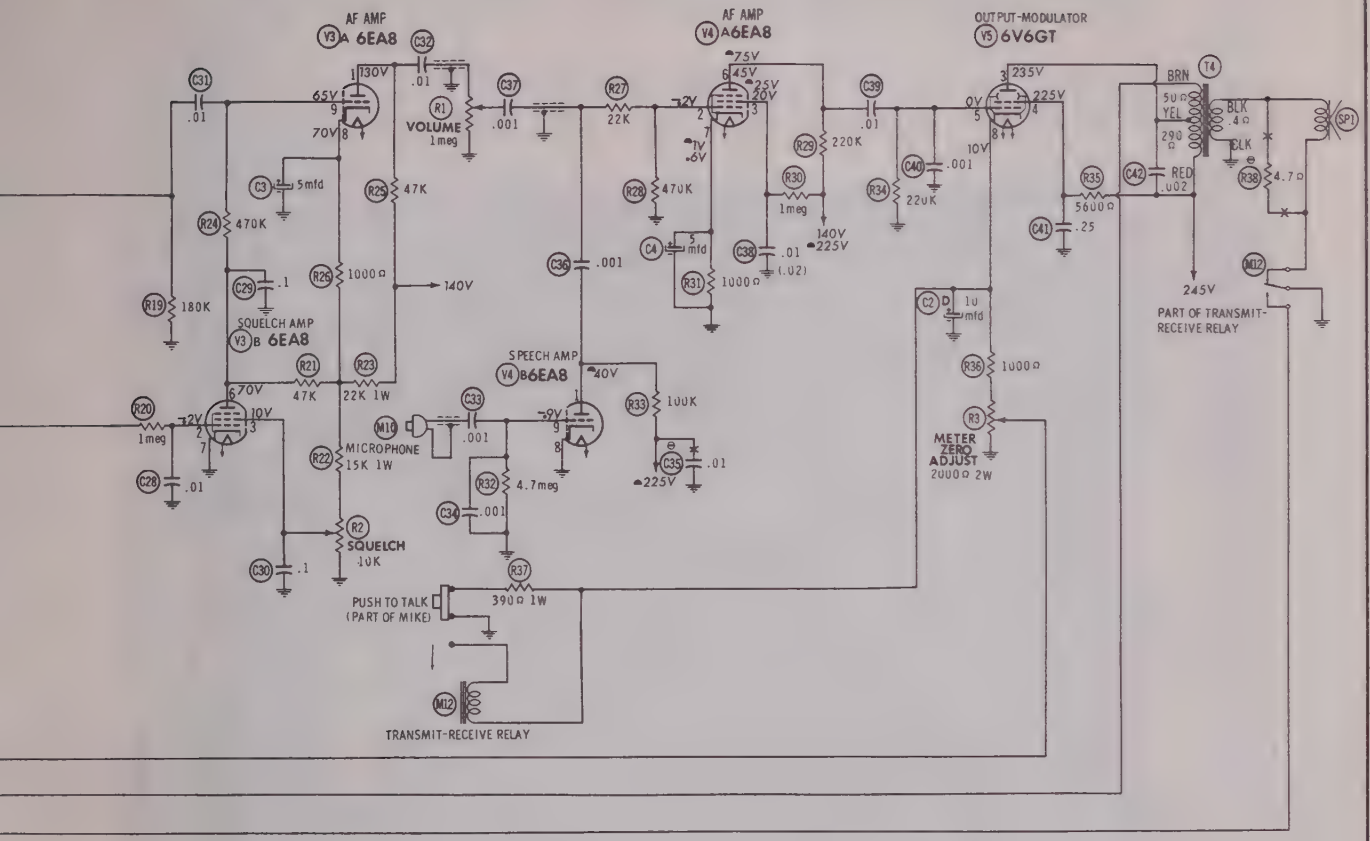
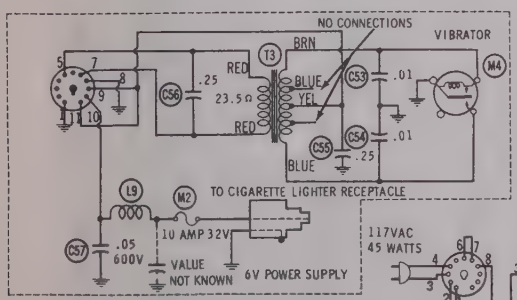
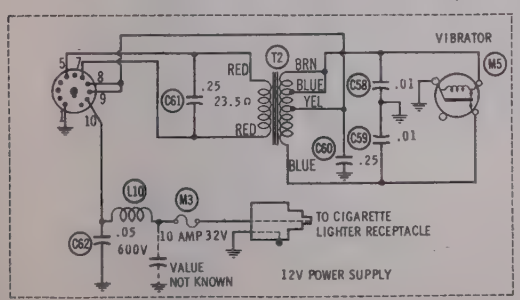
RESISTANCE READINGS

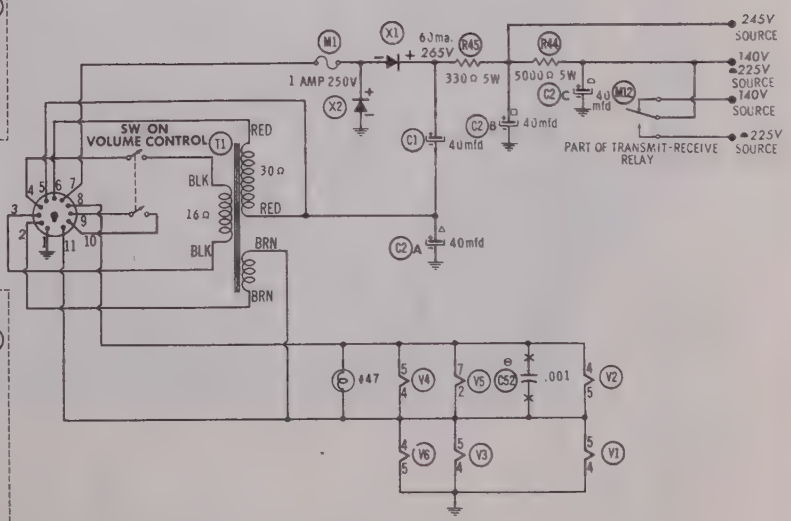
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6EA8	†15K	2.9meg	†105K	FIL	FIL	†10K	220Ω	0Ω	1meg
V2	6EA8	†15K	2.4meg	†15K	FIL	FIL	†51K	200Ω ▲160Ω	.1Ω	22K
V3	6EA8	†52K	1.2meg	▪19K	FIL	FIL	▪48K	0Ω	20K	500K
V4	6EA8	▲†105K	470K	†1.5meg	FIL	FIL	†225K	1000Ω	0Ω	4.7meg
V5	6V6GT	TP	FIL	†620Ω	†5900Ω	220K	TP	FIL	280Ω ▲390Ω	
V6	6AW8A	▲0Ω	47K	†10K	FIL	FIL	▲0Ω	22K	†9000Ω	†350Ω

ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN TRANSMIT POSITION.
† MEASURED FROM OUTPUT OF X1.
TP TIE POINT

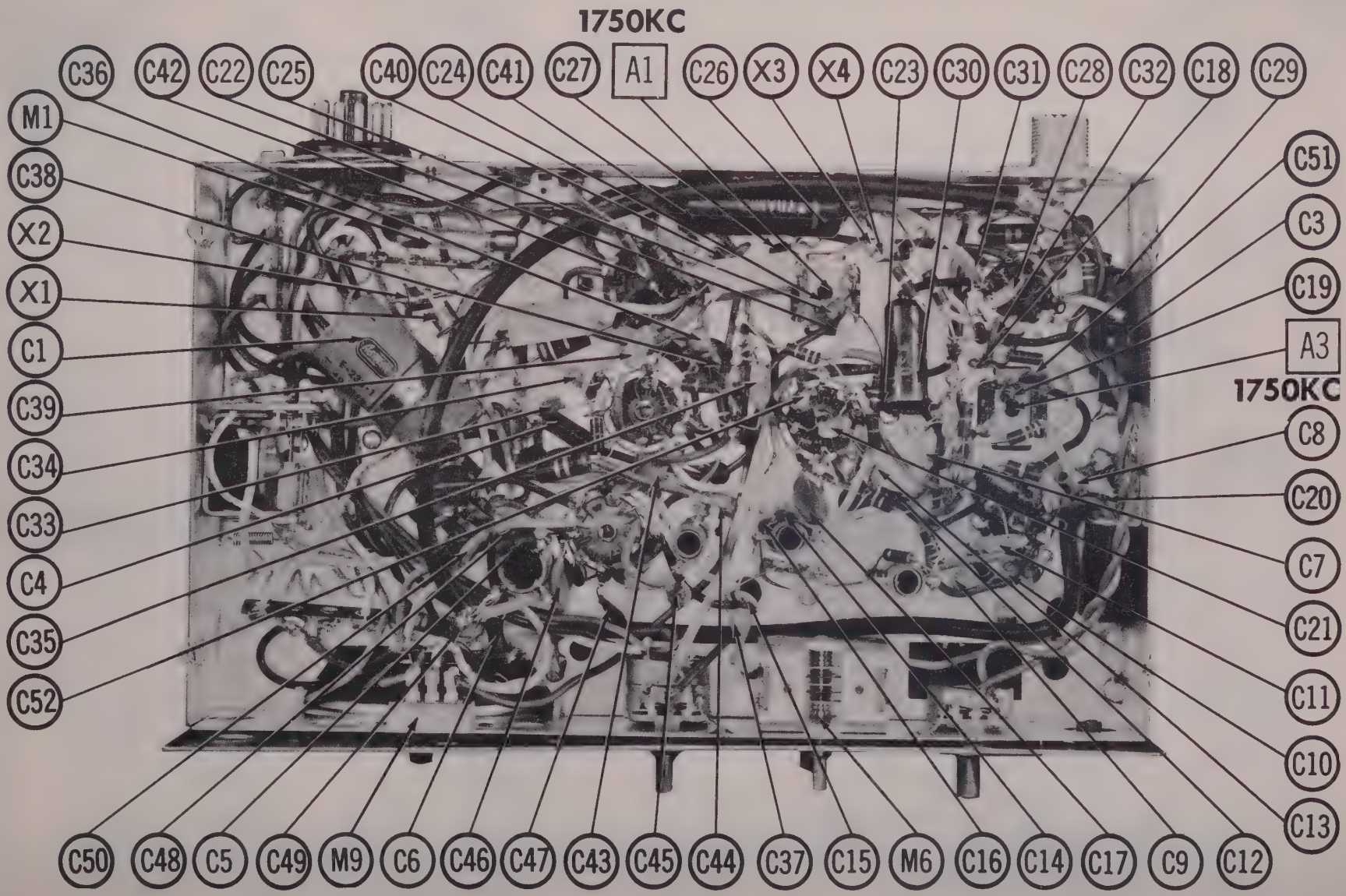




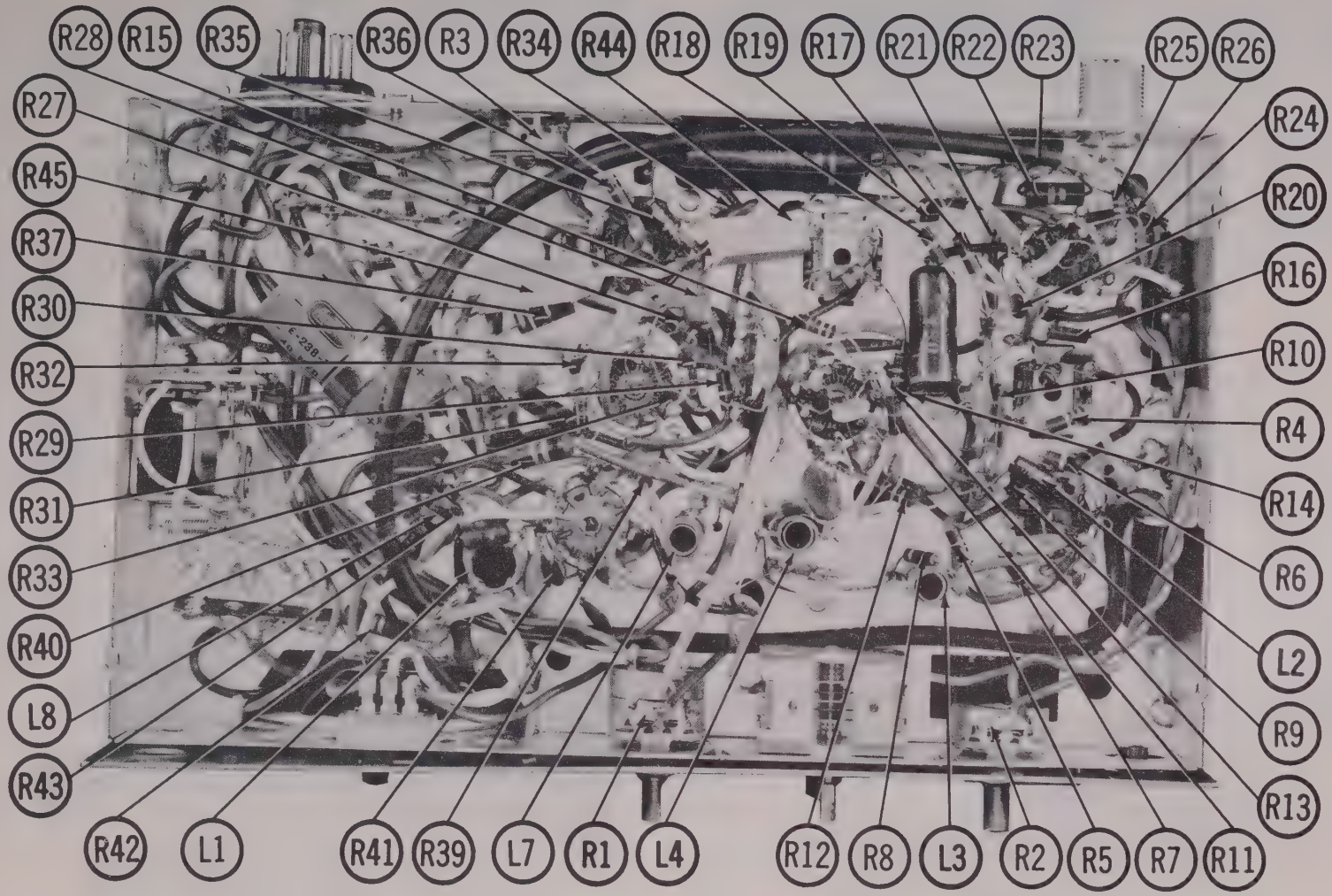




DEWALD MODELS
TR-6, TR-12, TR-910



CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1 thru A4.....GENERAL CEMENT #5097, 8727
WALSCO #2515

A5, A6, A7.....GENERAL CEMENT #8721, 8722
WALSCO #2519

A8.....GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298
WALSCO #2516, 2518, 2519

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .01mfd to pin 9 (grid) of Mixer. Low side to chassis.	1750KC (400% Mod)		Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Connect output of generator having 52Ω output impedance to antenna receptacle.	27.065MC		"	A5, A6	Preset A6 three-fourth of the way out. Adjust A5 and A6 in order for maximum output. A6 has two peaks. Use the higher peak.

TRANSMITTER ALIGNMENT

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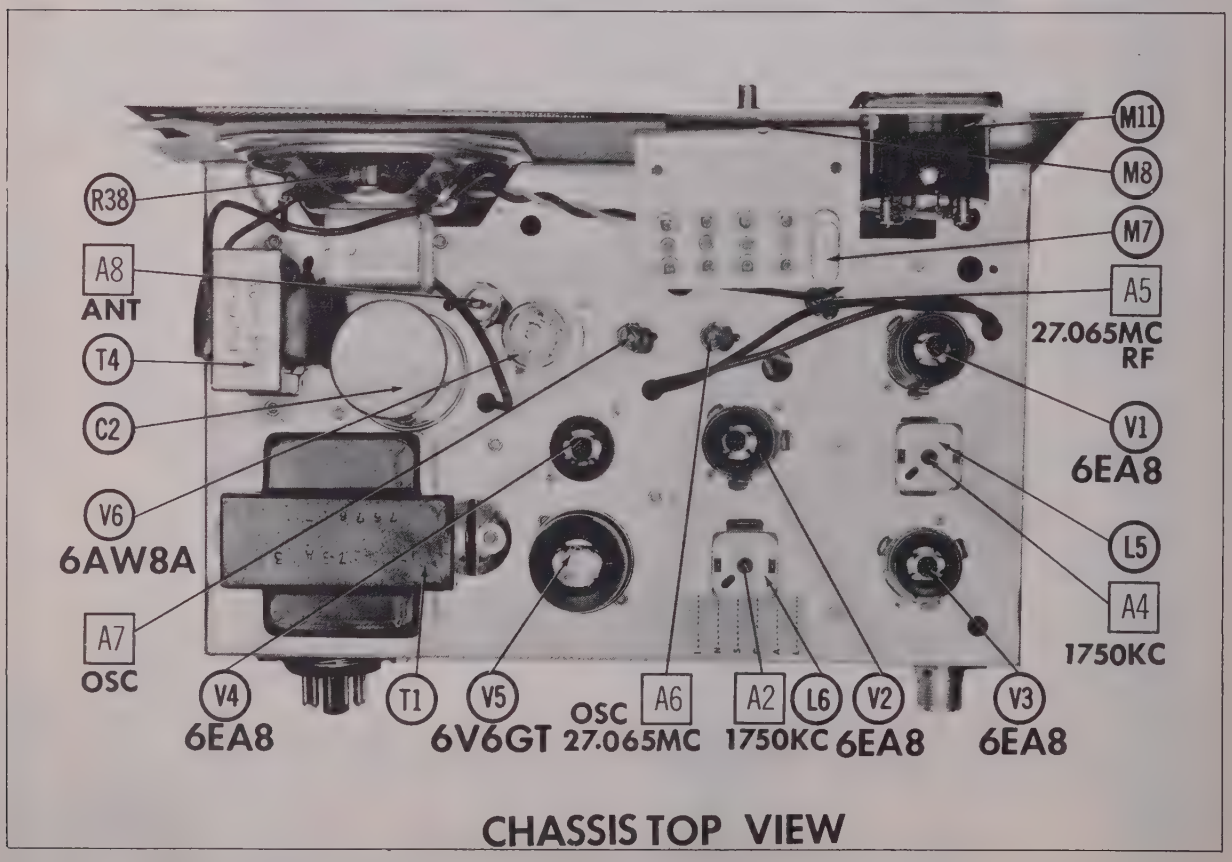
	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
3.	Insert a 52Ω non-inductive dummy load (minimum 3 watt dissipation) into antenna socket.	Connect a suitable RF meter across the dummy load.	A7, A8	Switch to Transmit and adjust for maximum output. Switch from receive to transmit several times while slowly turning A7 counterclockwise ½ turn at a time for maximum output, then carefully turn A7 an additional 1½ turn counterclockwise for maximum oscillator stability. Readjust A8 for maximum output.



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆			◆ RAYTHEON ◆ SYLVANIA ◆		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amp.-Mixer	6EA8	V4	AF Amp.-Speech Amp.	6EA8
V2	Rec. Osc.-IF Amp.	6EA8	V5	Output-Modulator	6V6GT
V3	Squelch-AF Amp.	6EA8	V6	Trans. Osc.-Final Amp.	6AW8A

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES		NOTES
			RCA PART No.	SARKES TARZIAN PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
X1	.060A		1N1763	40H			
X2	.060A		1N1763	40H			
X3	1N34A					1N34A	Detector
X4	1N34A					1N34A	AGC

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DeWALD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	40	200		PRS1580	BR4025	QT1-14	TC58	TD-40-250	TVA-1511
C2A	▲40	200		AFH3-43	C0340	XC4-65	FP376.8	TMT-3700	TVL-3785
B	■40	350		PRS1670	BR4035		TC78	TD-40-350	TVA-1611
C	▲40	350							
D	10	50							
C3	5	150		SRE150V5	NLW5-150	MT1-4	TC40	MLV5-150	TE-1504
C4	5	12		PTT51	NLW5-15	MT1-3	TT12X5	MLV5-15	TE-1127

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	5 N750 5%		N750-SI 5.0	TCN-5	C10V5U	CCTN-050	CN7-550	10TCU-V50
C6	10 N750 5%		N750-SI 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C7	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C8	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C10	22 NPO 5%			DTZ-22	C10Q22C	CM-19B-220J	CNO-422	10TCC-Q22
C11	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C12	1.5		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C13	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C14	22 NPO 5%			DTZ-22	C10Q22C	CM-19B-220J	CNO-422	10TCC-Q22
C15	3.9 NPO ±.25mmf				C10V4C	*		10TCC-V39
C16	10 N220							10TCP-Q10
C17	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C18	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C19	1.8 10%	Note 1	NPO-SI 2.0		C10V2C			10TCC-V18
C20	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C21	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C22	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C23	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C24	15	Note 1	SI 15	D6-150	L10Q15	CCD-150	GP415	10TS-Q15
C25	11	Note 1	SI 10	D6-100	L10Q10	CCD-100	GP410	10TS-Q10
C26	.05 400V		P488N-05	DD-503	CUB4S47	4DP-3-503	GEM-415	4TM-S50
C27	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C28	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C29	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C30	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C31	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C32	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C33	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C34	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	.01	Note 1	BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C36	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C37	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C38	.01	(.02) †	BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C39	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C40	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

POWER CHASSIS—BOTTOM VIEW

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C41	.25 400V		P488N-25		CUB4P25	4DP-5-254	GEM-4025	4TM-P25
C42	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C43	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C44	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C45	22 NPO 5%			DTZ-22	C10Q22C	CM-19B-220J	CNO-422	10TCC-Q22
C46	.001 2000V 10%							
C47	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C48	.001 2000V 10%							
C49	.001 2000V 10%	Note 1						
C50	.01	Note 1	BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C51	22 NPO	Note 1	NPO-DI 22	DTZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22
C52	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C53	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C54	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C55	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25
C56	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25
C57	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S50
C58	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C59	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C60	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25
C61	.25 200V		P288N-25		CUB2P25	2DP-4-254	GEM-2025	2TM-P25
C62	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S50

Note 1. Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Alternate Value.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			DEWALD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	1meg	V-329-3	B-70-S or (AB-70, AK-7, KR-7)	A47-1meg-Z/FS-3, SWE-20	Q13-137, 76-2 or (BU1, CF26, SS1, WF)*	U53, US-27
R2	Squelch	10K	V-330-4	B-14 or (AB-14, AK-11)	A47-10K-S/FS-3	Q11-116 or (BU1, CF9, SS1, DC1)*	U20
R3	Meter Zero Adjust.	200Ω 2W		WN-201	A43-200, FKS-1/4	W11-100 SK5	R250L

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	470K			
R5	4700Ω			
R6	100K			
R7	220Ω			
R8	5600Ω			
R9	1meg			
R10	10K			
R11	22K			
R12	10K			
R13	10K			
R14	220Ω			(100Ω)*
R15	390Ω			
R16	2.2meg			
R17	1meg			
R18	220K			
R19	180K			
R20	1meg			
R21	47K			
R22	15K 1W			
R23	22K 1W			
R24	470K			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R25	47K			
R26	1000Ω			
R27	22K			
R28	470K			
R29	220K			
R30	1meg			
R31	1000Ω			
R32	4.7meg			
R33	100K			
R34	220K			
R35	5600Ω			
R36	1000Ω			
R37	390Ω 1W			
R38	4.7Ω			Note 1
R39	47K			
R40	10K 1W			
R41	22K			
R42	1.2Ω			
R43	8200Ω 1W			
R44	5000Ω 5W	PW5-5000	5W-SQ-5000	
R45	330Ω 5W	PW5-330	5W-SQ-330	

* Alternate Value.
Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: DeWALD PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Ant.		SW-609				
L2	RF Choke(5.6uh)		SW-631	4609	RTC-8519	T820	
L3	RF		SW-608	6248	RTC-9248	T216	
L4	Osc.						
L5	1st IF						
L6	2nd IF						
L7	Osc. Plate		SW-608	6248	RTC-9248	T216	
L8	RF Choke (500uh)		TV-204	6174	RTC-8592	T324	
L9	Hash Choke						
L10	Hash Choke						

TRANSFORMER (POWER)

ITEM No.	RATING: AC OPERATION PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: DeWALD PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V @ .45A	100V @ .24A	6.3V @ 3A	PT-178A3					
T2	12 V DC OPERATION PRI. 12.6V @ 1.9A	SEC. 1 100V @ .24A DC		VT-181A-2					
T3	6V DC OPERATION PRI. 6.3VCT @3.6A	SEC. 1 100V @ .24A DC		VT-181A-2					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA: DeWALD PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	3800Ω Tap @ 17%	3-4Ω	T-179-2					

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: DeWALD PART No.	QUAM PART No.	NOTES
SP1	3½"	PM	3-4Ω		3A07	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: DeWALD PART No. FUSE	DeWALD PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	1A ① 250V P/T			318001 (3AG 1A 250V) P/T		GJV 1	
M2	SFE	10A ② 32V			307010 (SFE 10A 32V)	155009	SFE10	HDH
M3	SFE	10A ③ 32V			307010 (SFE 10A 32V)	155009	SFE10	HDH

① AC Operation.
② 6V DC Operation.
③ 12V DC Operation.

VIBRATOR

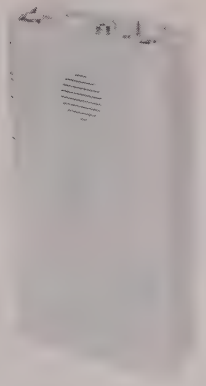
ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA: DeWALD PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	NOTES
M4	Interrupter	6.3	115%		5301	1601	5301	6.3V DC Operation
M5	Interrupter	12.6	115%		6301	G1601	6301	12.6V DC Operation

MISCELLANEOUS

ITEM No.	PART NAME	DeWALD PART No.	NOTES
M6	Tuning Cap.		Receiver Tuning
M7	Crystal		Order by Channel Desired
M8	Switch		Crystal Selector
M9	Switch		Meter (DPDT Slide Type)
M10	Microphone		Includes Push-to-talk Switch
M11	Meter		
M12	Relay		Transmit-Receive

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in 12 Colors
8524 (Stranded) Available in 12 Colors
Power Cord ..... Use BELDEN No. 17106 (Plastic) or 17126 (Rubber) - 6 Ft.
17109 (Plastic) or 17129 (Rubber) - 9 Ft.
Power Cord (Interlock Type) ..... Use BELDEN No. 8874 (Rubber) or 8895 (Plastic)



NOTICE

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TRADE NAME	Duo Com Models 100, 100S
MANUFACTURER	Osborne Electronic Sales Corp., 13105 S. Crenshaw Blvd., Hawthorne, California
TYPE SET	Battery Operated 11 Transistor Single Channel Portable Citizens Band Transmitter-Receiver
POWER SUPPLY	12 Volts DC RATING 23 MA @ 12 Volts DC (Receive) 12 MA @ 12 Volts DC (Transmit)
TUNING RANGE	Any One of Citizens Band Channels 1 thru 23

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

When adjusting A4 and A6, best results are obtained with the unit connected to the antenna normally used, and the chassis as nearly in the cabinet as possible.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

RECEIVER ALIGNMENT

Connect DC VTVM across Volume control.

	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1.	Tune to 455KC. Connect high side to base of Mixer, low side to ground.		A1	Remove receiver oscillator crystal. Adjust for maximum deflection. Reinsert crystal.
2.	Tune to 4680KC. Connect high side to base of Mixer, low side to ground.		A2	Adjust for maximum deflection.
3.	Tune to crystal frequency. High side to base of Mixer, low side to ground.	Highest Channel Used.	A3	Adjust for maximum deflection while rocking. Note rate of drop-off and set just below peak on side of gradual dropoff.
4.	"	"	A4	Adjust for maximum deflection.

TRANSMITTER ALIGNMENT

Output frequency should be checked by an accurately calibrated secondary frequency standard to be sure that frequency is within .005%.

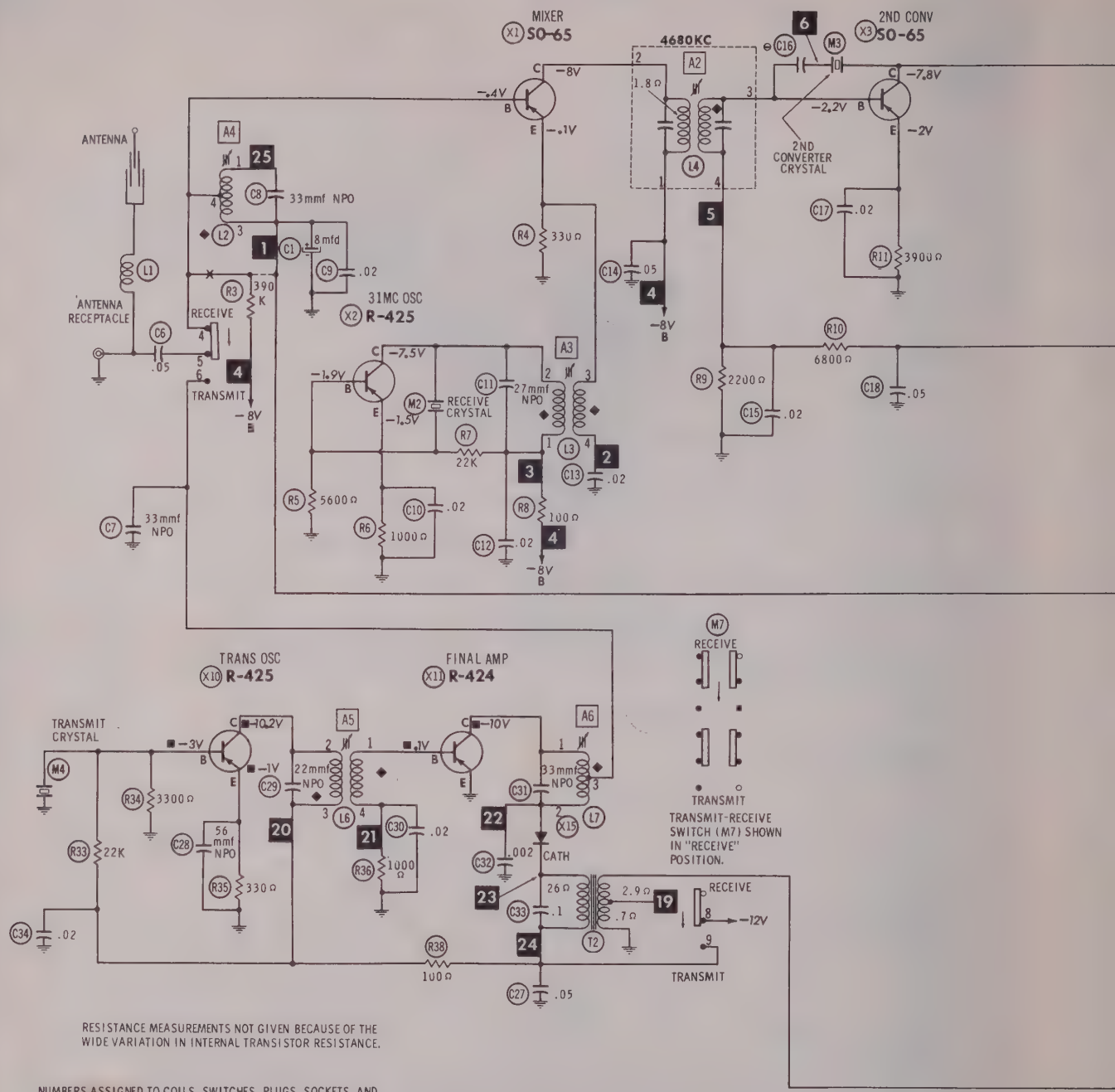
ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
5.	Connect suitable load to antenna receptacle. Connect RF Wattmeter across load.	DC VTVM between point A and ground.	A5	Adjust for maximum deflection while rocking. Note rate of dropoff and set just below peak on side of gradual drop-off.
6.	"		A6	Adjust for maximum output as indicated on Wattmeter (or field strength meter).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

LY299



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

◆ DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE™

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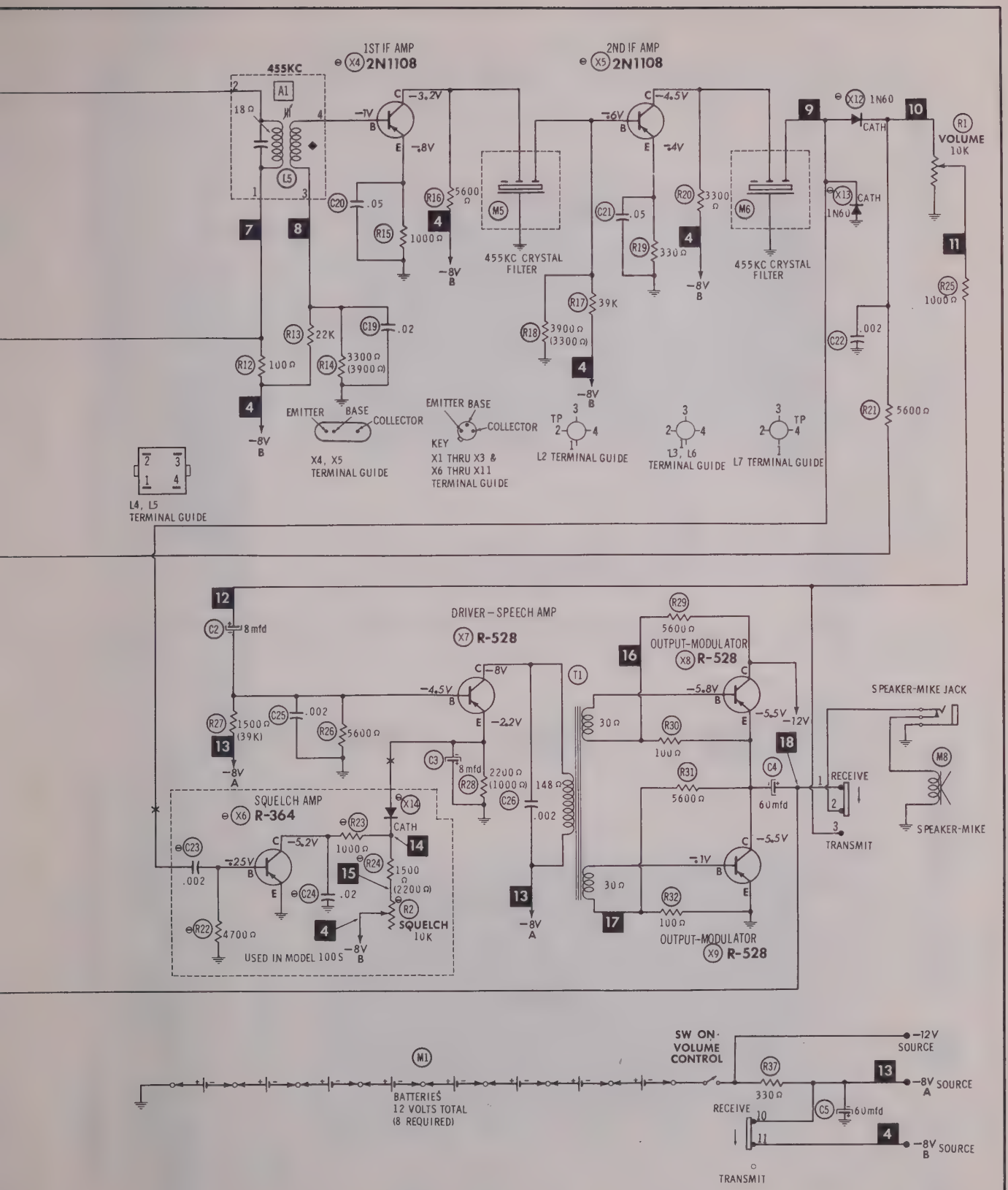
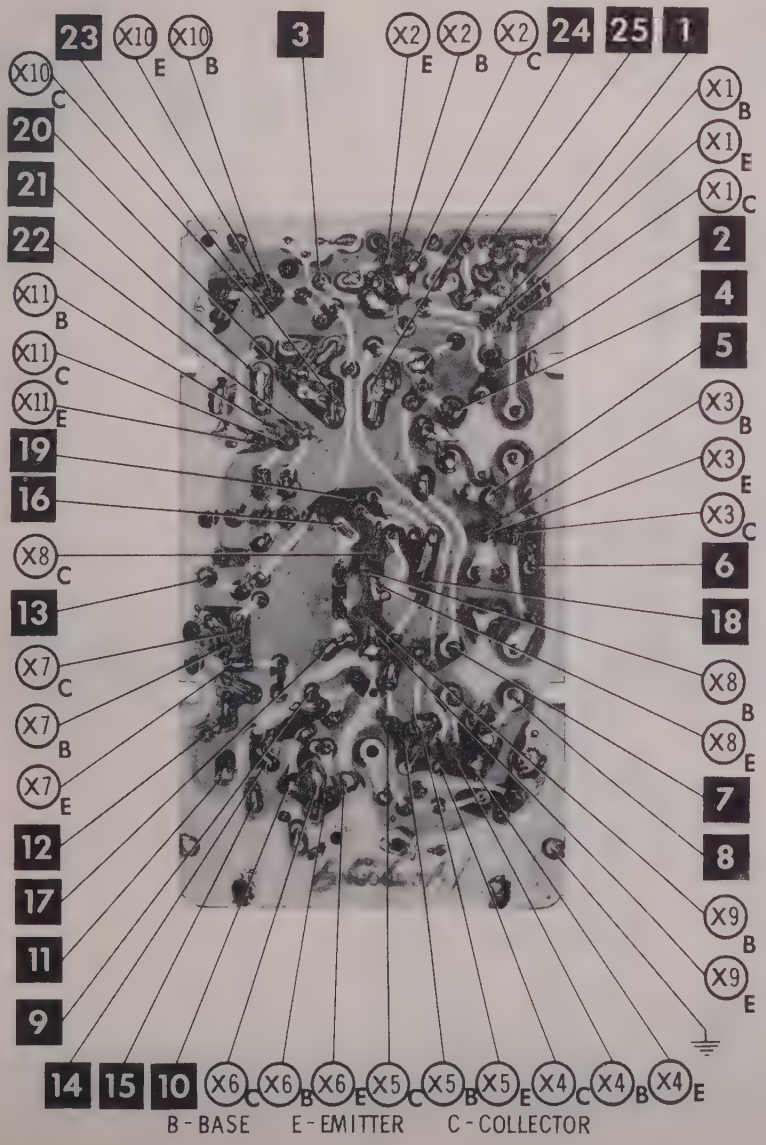
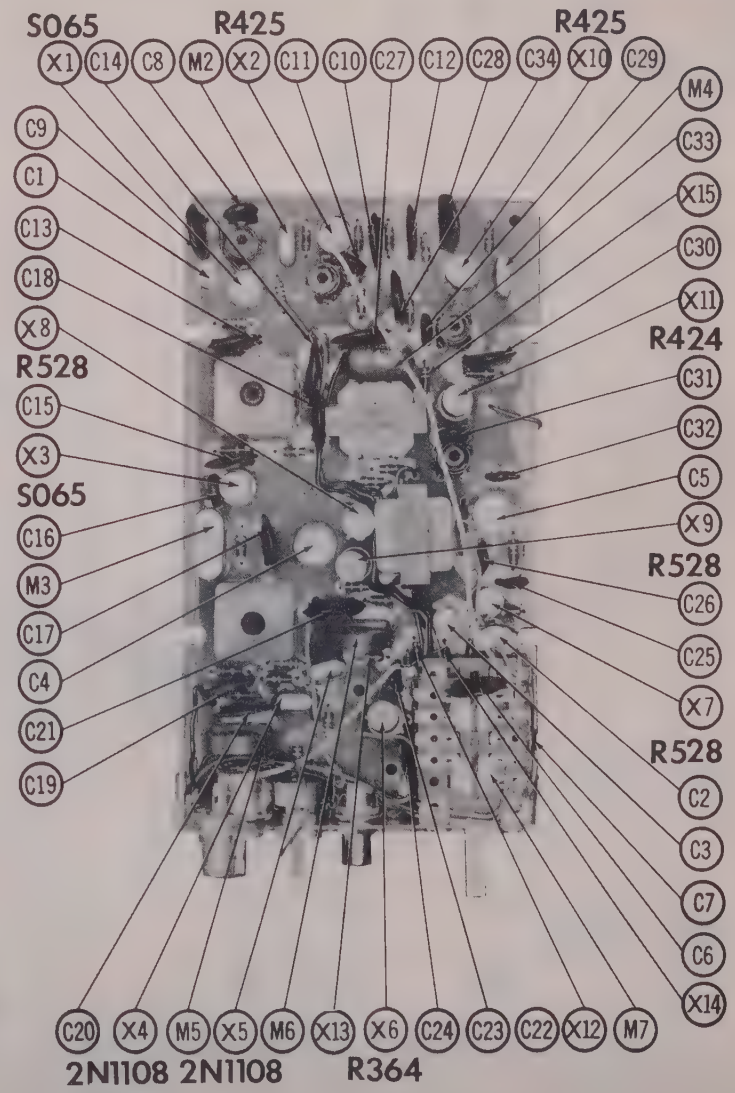


DUO COM MODEL 100



A Howard W. Sams CIRCUITRACE Photo

PRINTED BOARD



PRINTED BOARD
CAPACITOR, MISC. & TRANSISTOR IDENT.

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid 22AWG) 8524 (Stranded 22AWG) 8570 (Stranded 26AWG)	Available in 12 Colors

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	SO-65	Mixer	2N1179		PNP
X2	R-425	31MC Osc.	2N1178		PNP
X3	SO-65	Converter (455KC)	2N1178		PNP
X4	2N1108 2N1107*	1st IF Amplifier	2N1525		PNP
X5	2N1108 2N1107*	2nd IF Amplifier	2N1525		PNP
X6	R-364	Squelch Amp.	2N406	2N362	PNP (Note 1)
X7	R-528	Driver-Speech Amp.	2N406	2N362	PNP
X8	R-528	Output-Modulator	2N408	2N632	PNP
X9	R-528	Output-Modulator	2N408	2N632	PNP
X10	R-425	Trans. Osc.	2N1178		PNP
X11	R-424	Final Amp.	2N1177		PNP

Note 1. Not used in Model 100 * Alternate.

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES	NOTES
			RCA PART No.	SARKES TARZIAN PART No.	RAYTHEON PART No.	
X12		1N60*			1N60	Detector
X13		1N60*			1N60	Limiter
X14		S-249				Squelch Rectifier ①
X15		STC249				Mixer

① Model 100S Only.
* Alternate Type 1N64 (Part #8305)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DUO COM PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	8	10	8220	BCD12008	ECPB407	MT1-5	PET1340	MLV10-10	VL-1126
C2	8	10	8220	BCD12008	ECPB407	MT1-5	PET1340	MLV10-10	VL-1126
C3	8	10	8220	BCD12008	ECPB407	MT1-5	PET1340	MLV10-10	VL-1126
C4	60	12	8221	BCD12075	ECPB416	MT1-19	TT15X50	MLV50-12	VL-1137
C5	60	12	8221	BCD12075	ECPB416	MT1-19	TT15X50	MLV50-12	VL-1137

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.05		BPD-05	DA-503	H-05S5		TA-150	TG-S50
C7	33 NPO		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C8	33 NPO		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C9	.02		BPD-02	DA-203	H-05S2	CCD-203	TA-120	TG-S20
C10	.02		BPD-02	DA-203	H-05S2	CCD-203	TA-120	TG-S20
C11	27 NPO		NPO-DI 25	DTZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C12	.02		BPD-02	DA-203	H-05S2	CCD-203	TA-120	TG-S20
C13	.02		BPD-02	DA-203	H-05S2	CCD-203	TA-120	TG-S20
C14	.05		BPD-05	DA-503	H-05S5		TA-150	TG-S50
C15	.02		BPD-02	DA-203	H-05S2	CCD-203	TA-120	TG-S20
C16		Note 1						
C17	.02		BPD-02	DA-203	H-05S2	CCD-203	TA-120	TG-S20
C18	.05		BPD-05	DA-503	H-05S5		TA-150	TG-S50
C19	.02		BPD-02	DA-203	H-05S2	CCD-203	TA-120	TG-S20
C20	.05		BPD-05	DA-503	H-05S5		TA-150	TG-S50
C21	.05		BPD-05	DA-503	H-05S5		TA-150	TG-S50
C22	.002		BPD-002	DM-202	BYA10D2	CCD-202	B-220	5HK-D20
C23	.002	Note 2	BPD-002	DM-202	BYA10D2	CCD-202	B-220	5HK-D20
C24	.02	Note 2	BPD-02	DA-203	H-05S2	CCD-203	TA-120	TG-S20
C25	.002		BPD-002	DM-202	BYA10D2	CCD-202	B-220	5HK-D20
C26	.002		BPD-002	DM-202	BYA10D2	CCD-202	B-220	5HK-D20
C27	.05		BPD-05	DA-503	H-05S5		TA-150	TG-S50
C28	56 NPO			TCZ-56	C10Q56C	CCTO-560	CNO-456	10TCC-Q56
C29	22 NPO		NPO-DI 22	DTZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22
C30	.02		BPD-02	DA-203	H-05S2	CCD-203	TA-120	TG-S20
C31	33 NPO		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C32	.002		BPD-002	DM-202	BYA10D2	CCD-202	B-220	5HK-D20
C33	.1 100V		V84C2P1		DPMS2P1	IDP-2-104	GEM-201	2TM-P10
C34	.02		BPD-02	DA-203	H-05S2	CCD-203	TA-120	TG-S20

Note 1. Value Varies (10mmf - 100mmf) depending on Crystal Series Resistance. Replace with Original Value.
Note 2. Model 100S Only.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			DUO COM PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	10K	8408				MLC14AS
R2	Squelch	10K	①	JP2-103			MLC14A

① Model 100S Only.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS
R3	390K			
R4	330Ω			
R5	5600Ω			
R6	1000Ω			
R7	22K			
R8	100Ω			
R9	2200Ω			
R10	6800Ω			
R11	3900Ω			
R12	100Ω			
R13	22K			
R14	3300Ω			(3900Ω)††
R15	1000Ω			
R16	5600Ω			
R17	39K			
R18	3900Ω			(3300Ω) †
R19	330Ω			
R20	3300Ω			
R21	5600Ω			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS
R22	4700Ω			①
R23	1000Ω			①
R24	1500Ω			(2200Ω)† ①
R25	1000Ω			
R26	5600Ω			
R27	1500Ω			(39K)*
R28	2200Ω			(1000Ω)*
R29	5600Ω			
R30	100Ω			
R31	5600Ω			
R32	100Ω			
R33	22K			
R34	3300Ω			
R35	330Ω			
R36	1000Ω			
R37	330Ω			
R38	100Ω			

† Alternate Value.
* Value Used in Model 100.
① Model 100S Only.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		DUO COM PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	
L1	Ant. Loading (2.6uh)	8483					
L2	Antenna	8406					
L3	Receive Osc.	8404					
L4	4MC IF	8410					
L5	455KC IF	8409					
L6	Transmit Osc.	8405					
L7	Final	8407					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	DUO COM PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.5	1	8400					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	DUO COM PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2			8401					

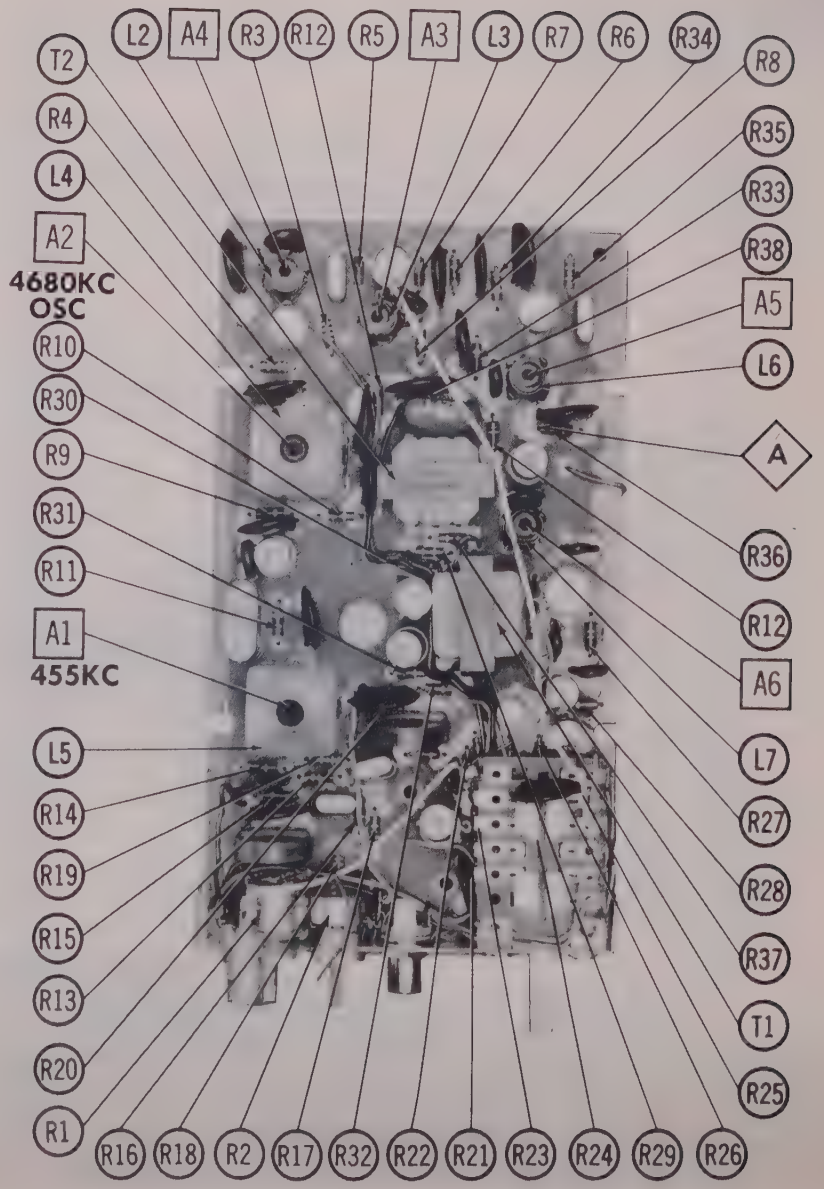
BATTERIES

ITEM No.	VOLTAGE	DUO COM PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1½V			930		1015		M-15R	8 Required

MISCELLANEOUS

ITEM No.	PART NAME	DUO COM PART No.	NOTES
M2	Crystal	8452	Receive Oscillator Crystal (Channel 10)
M3	Crystal	8450	Converter Crystal (4.68MC, Channel 10)
M4	Crystal	8451	Transmit Oscillator Crystal (Channel 10)
M5	Crystal Filter	8403	First 455KC Filter
M6	Crystal Filter	8403	Second 455KC Filter
M7	Switch	8480	Transmit-Receive (4PDT Spring Loaded)
M8	Speaker - Mike	8411	

PRINTED BOARD



NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

MODEL 762W

EICO MODELS 760, 760W, 761, 761W, 762, 762W

TRADE NAME	Eico Models 760, 760W, 761, 761W, 762, 762W
MANUFACTURER	Electronics Instrument Co., Inc., 3300 Northern Blvd., Long Island City 1, N. Y.
TYPE SET	AC-Battery Operated Single Channel Citizens Band Transmitter-Receiver
POWER SUPPLY	Model 760: 110-120 Volts AC, 60 Cycles Model 761: 110-120 Volts AC, 60 Cycles (or) 6 Volt Storage Battery Model 762: 110-120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery
RATING	46 Watts, .45 Amp. @ 117 Volts AC (or) 8.4 Amp. @ 6.3 Volts DC (or) 4.2 Amp @ 12.6 Volts DC
TUNING RANGE	TRANSMITTER: Any one of Citizens Band Channels 1 thru 23 RECEIVER: Variable Tuning of Citizens Bands 1 thru 23

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Temporarily connect a 100K resistor from point (A) to point (B) to provide voltage to transmitter oscillator. This signal will be used to align the receiver oscillator. Turn unit on and allow to warm up for 10 minutes.

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	OUTPUT METER	ADJUST	REMARKS
1.	Not Used		Set to channel of crystal being used in transmitter.	Across voice coil.	A1	Adjust Volume control to point where the 120~ hum is heard clearly. Adjust A1 for maximum output of this hum. Remove the 100K resistor.
2.	High side thru .001mfd to pin 2 (grid) of Mixer (V2). Low side to chassis.	1750KC (400~ 30% AM)		"	A2, A3, A4, A5, A6, A7	Adjust for maximum output.
3.	High side thru 100Ω to either antenna receptacle. Low side to chassis.	27MC	9	"	A8, A9	"

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
Connect Antenna	0-100MA DC Meter to Meter Jack	A10, A11	Adjust A10 for minimum (20-30MA). Transmit lamp on front panel should increase in brightness. Adjust A11 so that meter indicates 27MA. Repeat Adjustments until minimum indication obtained by adjusting A10 approaches but does not exceed 27MA.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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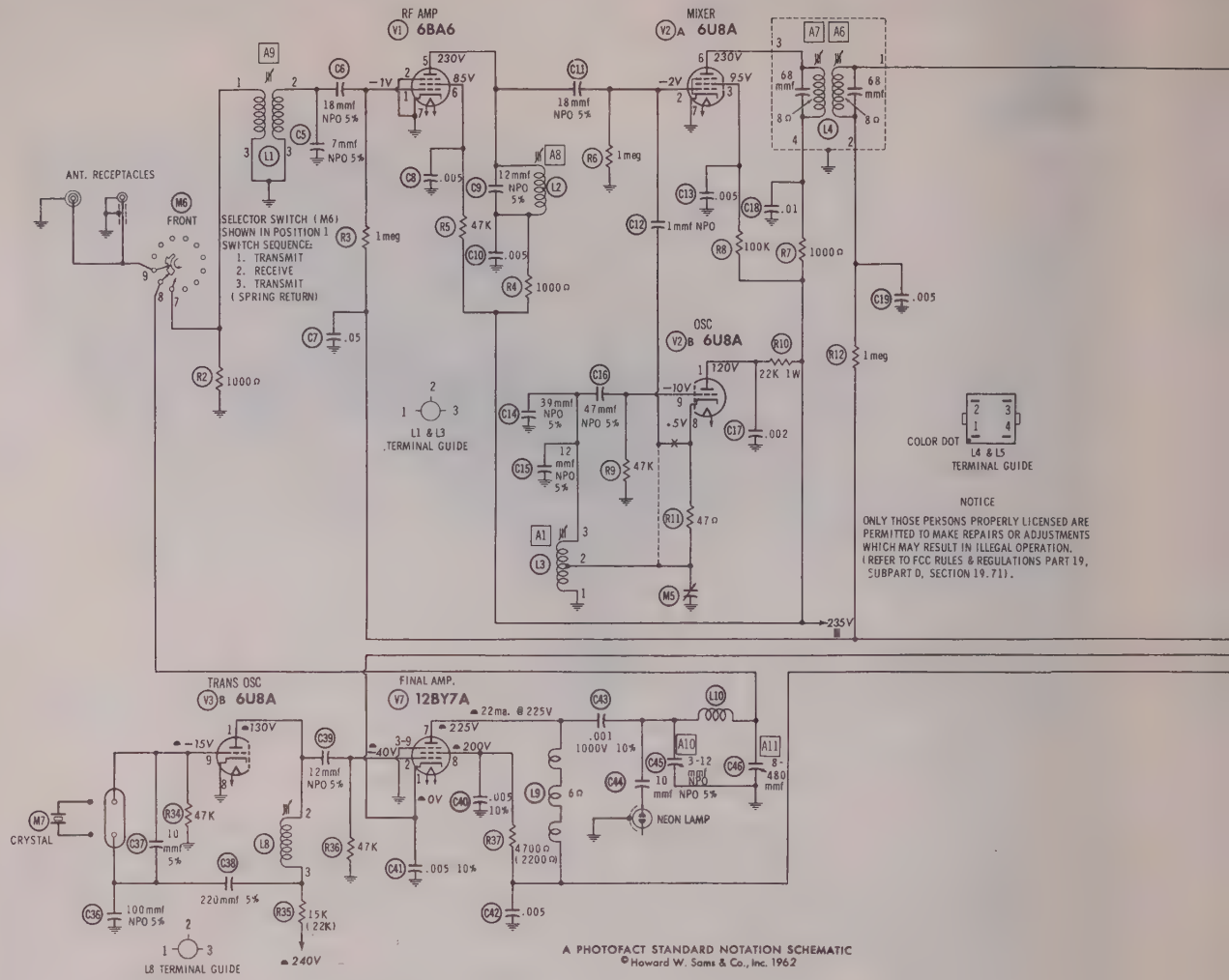
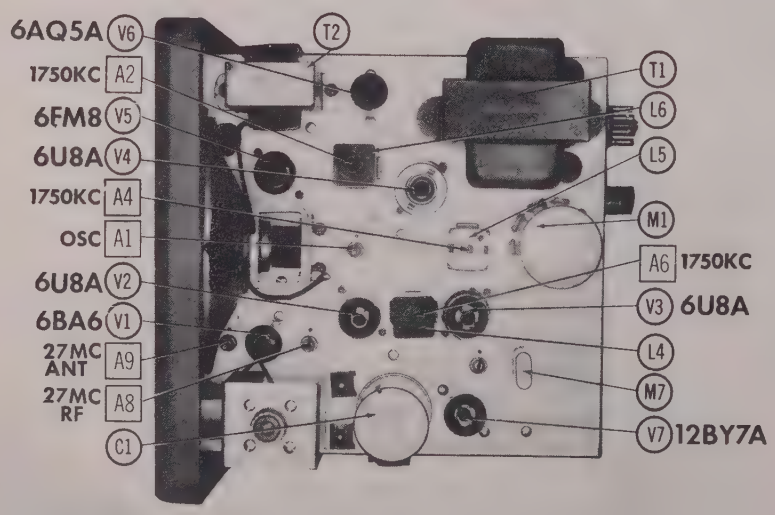
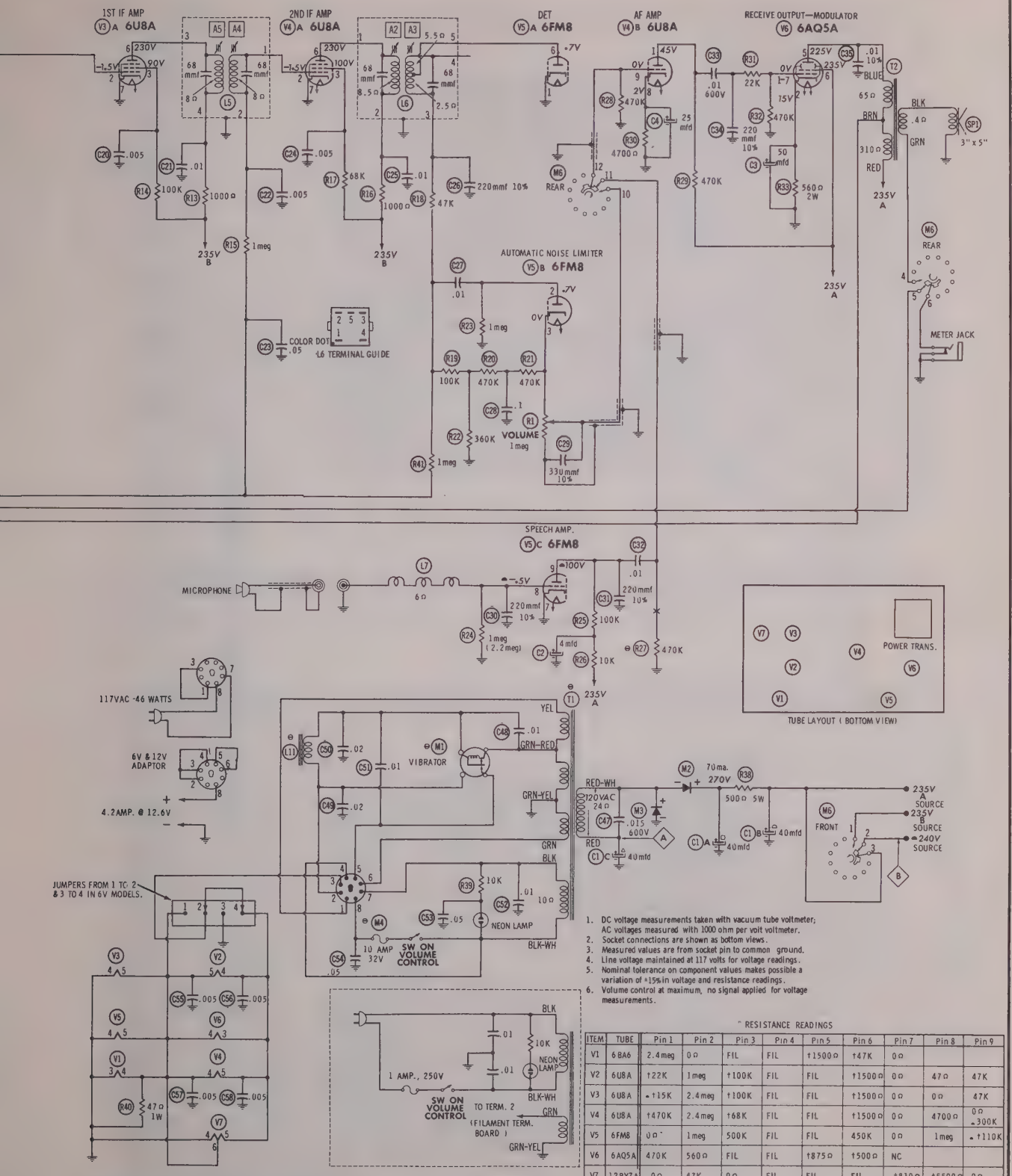




CHASSIS-TOP VIEW



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6 BA6	2.4meg	0Ω	FIL	FIL	†1500Ω	†47K	0Ω		
V2	6U8A	†22K	1meg	†100K	FIL	FIL	†1500Ω	0Ω	47Ω	47K
V3	6U8A	▲†15K	2.4meg	†100K	FIL	FIL	†1500Ω	0Ω	0Ω	47K
V4	6U8A	†470K	2.4meg	†68K	FIL	FIL	†1500Ω	0Ω	4700Ω	0Ω ▲300K
V5	6FM8	0Ω	1meg	500K	FIL	FIL	450K	0Ω	1meg	▲†110K
V6	6AQ5A	470K	560Ω	FIL	FIL	†875Ω	†500Ω	NC		
V7	12BY7A	▲0Ω	47K	0Ω	FIL	FIL	FIL	▲†810Ω	▲†5500Ω	0Ω

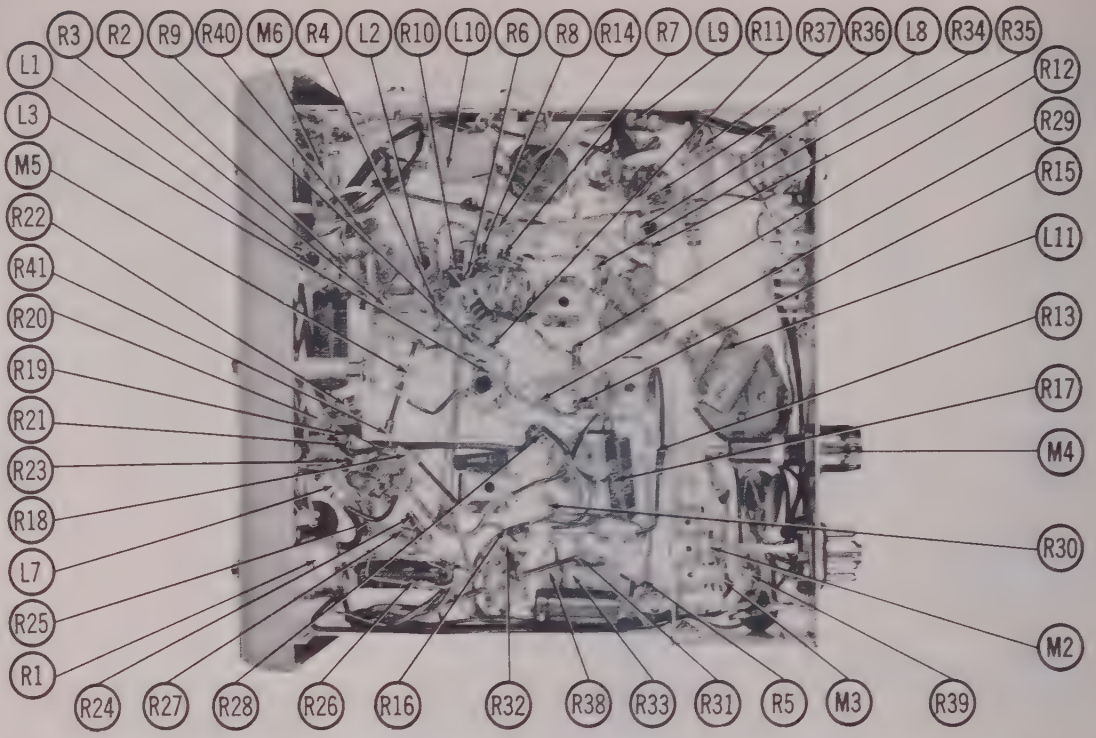
ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN TRANSMIT POSITION. NC NO CONNECTION
† MEASURED FROM OUTPUT OF M2.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

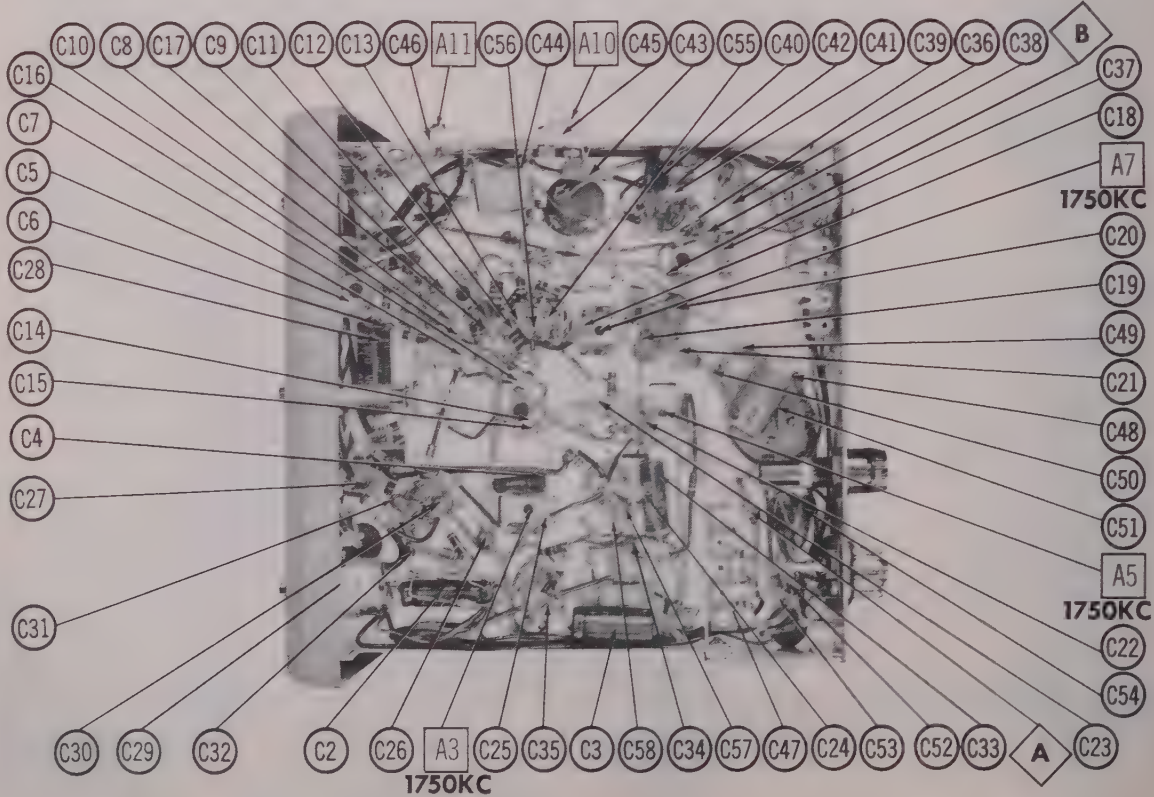
Ⓔ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

EICO MODELS 760, 760W, 761, 761W, 762, 762W



CHASSIS BOTTOM VIEW-RESISTOR, INDUCTOR & MISC. IDENT.



CHASSIS BOTTOM VIEW-ALIGNMENT & CAPACITOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	6BA6	V4	2nd IF Amp. -AF Amp.	6U8A
V2	Rec. Mixer - Osc.	6U8A	V5	Det. -Speech Amp. -ANL	6FM8
V3	1st IF Amplifier-Trans. Osc.	6U8A	V6	Rec. Output-Modulator	6AQ5A
			V7	Final Amplifier	12BY7A

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	EICO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲40	350	24017	AFH3-44	C0350	XC3-40	FP377.1	TMT-3748	TVL-3787
B	▲40	350							
C	▲40	250							
C2	4	250	23008	PRS1550	BBR4-250	QT1-2	TC697	TD-4-250	TVA-1501
C3	50	50	23011	PTT98	NLW50-50	MT1-17	TC39	MLV50-50	TE-1307
C4	25	6	23020	PTT26	NLW25-10	MT1-10	TT6X25	MLV25-6	TE-1091

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	7 NPO 5%		NPO-SI 6.8	TCZ-6R8	C10V7C	CCTO-6R8	CNO-568	10TCC-V68
C6	18 NPO 5%			TCZ-18	C10Q18C	CM-19B-180J	CNO-418	10TCC-Q18
C7	.05		BPD-05	DD-503	PM6S5	6DP-3-503	GP150	5HK-S50
C8	.005		BPD-005	DD-502	BYA10D6	CCD-502	B-250	5HK-D50
C9	12 NPO 5%			TCZ-12	C10Q12C	CM-19B-120J	CNO-412	10TCC-Q12
C10	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C11	18 NPO 5%			TCZ-18	C10Q18C	CM-19B-180J	CNO-418	10TCC-Q18
C12	1 NPO		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C13	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C14	39 NPO 5%			TCZ-39	C10Q39C	CCTO-390	CNO-439	10TCC-Q39
C15	12 N750 5%			TCN-12	C10Q12U		CN7-412	10TCU-Q12
C16	47 NPO 5%			DTZ-47	C10Q47C	CM-19B-470J	CNO-447	10TCC-Q47
C17	.002		BPD-002	DD-202	BYA10D2	CCD-502	B-220	5HK-D20
C18	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C20	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C21	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C23	.05		BPD-05	DD-503	CUB6S5	6DP-3-503	GP150	5HK-S50

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C24	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C25	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C27	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C29	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C30	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C31	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C32	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C34	220 10%		DI-220	DD-331	L10T22	CCD-221	GP322	10TS-T22
C35	.01 10%		DI-10000		PM6S1	CCD-103	GEM-1611	10TS-S10
C36	100 NPO 5%			TCZ-100	C10T1C		CNO-310	10TCC-T10
C37	10 5%		1469-00001	TCZ-10	22R5Q1	CM-19B-100J	CNO-410	MS-41
C38	220 5%		1469-00022	TCZ-220	22R5T22	CM-19B-221J	CNO-322	MS-322
C39	12 NPO 5%			TCZ-12	C10Q12C	CM-19B-120J	CNO-412	10TCC-Q12
C40	.005 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50
C41	.005 10%		DI-5000		PM6D5	CCD-502	JL-250	10TS-D50
C42	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C43	.001 1000V 10%					VCM-20-102K		
C44	10 NPO 5%		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C45	3-12 NPO	#29500		822-FZ			ST-533-Z	
C46	8-480	#29509						
C47	.015 600V		P688N-015	DD-153	CUB6S15	6DP-2-153	GEM-6115	6TM-S15
C48	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C49	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C50	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C51	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C52	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C53	.05	Note 1	BPD-05	DD-503	PM6S5	6DP-3-503	GP150	5HK-S50
C54	.05		BPD-05	DD-503	PM6S5	6DP-3-503	GP150	5HK-S50
C55	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C56	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C57	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C58	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

Eico Part Number.
Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	EICO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg	½	18059	B-70-S	A47-1meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	1000Ω			
R3	1meg			
R4	1000Ω			
R5	47K			
R6	1meg			
R7	1000Ω			
R8	100K			
R9	47K			
R10	22K 1W			
R11	47Ω			
R12	1meg			
R13	1000Ω			
R14	100K			
R15	1meg			
R16	1000Ω			
R17	68K			
R18	47K			
R19	100K			
R20	470K			
R21	470K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R22	360K			
R23	1meg			
R24	1meg			(2.2meg)*
R25	100K			
R26	10K			
R27	470K			Note 1
R28	470K			
R29	470K			
R30	4700Ω			
R31	22K			
R32	470K			
R33	560Ω 2W			
R34	47K			
R35	15K			(22K)*
R36	47K			
R37	4700Ω			(2200Ω)*
R38	500Ω 5W	PW5-500	5W-SQ-500	
R39	10K			
R40	47Ω 1W			
R41	1meg			

* Alternate Value.
Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		EICO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant.	36017					① Not used in Model 760
L2	RF	36018					
L3	Osc.	36019					
L4	1st IF	34615					
L5	2nd IF	34616					
L6	3rd IF	34617					
L7	RF Choke (100uh)	35052	TV-194	6112	RTC-8574	T305	
L8	Osc. Plate	36020					
L9	RF Choke (100uh)	35052	TV-194	6112	RTC-8574	T305	
L10	Ant. Loading(1.8uh)	35051					
L11	Hash Choke	35053 ①					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	EICO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V ⓐ .45A or 12.6VCT ⓐ 2.4A	120V ⓐ .250A AC	12.6V ⓐ 1.8A AC (AC only)	30037 ①					① Part #30036 used in Model 761, Part #30035 used in Model 760.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	EICO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	8600Ω Tap ⓐ6000Ω	3-4Ω	32023					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	EICO PART No.	QUAM PART No.	
SP1	3"x 5"	PM	3-4Ω	55014	35A05	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				EICO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6V	115v	39501	6301	G-1601	6301	
	Interrupter	6.3V	115v	39500	5301	G-1501	5301	

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	EICO PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M2	.070A	93007	1N1763	F6	
M3	.070A	93007	1N1763	F6	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			EICO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M4	3AG	10A 32V	91010 ①	97800	307010 (3AG 10A 32V)	342001	MDA 10	HKP
		6A 32V	91009 ②	97800	307006 (3AG 6A 32V)	342001	MDA 6	HKP
		1A 250V S/B	91006 ③	97800	313001 (3AG 1A 250V)	342001	MDL 1	HKP

① Models 761, 6VCD Operation.
② Models 762, 12VDC Operation.
③ 117VAC Operation.

MISCELLANEOUS

ITEM No.	PART NAME	EICO PART No.	NOTES
M5	Variable Cap.	29016	Receiver Tuning
M6	Switch	60077	Function Selector (Rotary Type)
M7	Crystal		Order by Freq. Desired

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	53033	Lever
Knob	53034	Tuning, Volume
Front Panel	80073	
Handle	81232	Model 761, 762
Cabinet	88066	Model 761, 762
Cabinet	88070	Model 760

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

TRADE NAME	Globe Model CB-200
MANUFACTURER	Globe Electronics, A Div. of Textron Electronics, Inc., Council Bluffs, Iowa
TYPE SET	AC-Battery Operated 10 Tube Crystal Controlled Citizens Band Transmitter-Receiver
POWER SUPPLY	110 -120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery 110 -120 Volts AC, 60 Cycles (or) 6 Volt Storage Battery
RATING	63 Watts, .7 Amp. @117 Volts AC (Transmit) 58 Watts, .65 Amp. @117 Volts AC (Receiver) 4.6 Amp. @12.6 Volts DC 9.2 Amp. @6.3 Volts DC
TUNING RANGE	TRANSMITTER--Any 5 of Citizen Band Channels 1 thru 22 RECEIVER -- Crystal controlled for any 4 Bands. "T" position of Band Switch permits continuous tuning over entire Citizens Band range.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Suggested Alignment Tools:
A1 thru A6..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A7 thru A11.....GENERAL CEMENT #8721, 8722
WALSCO #2519
A13, A14.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

RECEIVER

1. Connect the high side of signal generator (tuned to 1680KC unmod.) thru .001mfd to pin 2 (grid) of Mixer, low side to chassis. Connect DC probe of VTVM to point Ⓐ (AVC), common to chassis. Adjust A1, A2, A3, A4, A5 and A6 for maximum deflection. Remove test equipment.
2. Connect DC probe of VTVM to pin 9 (grid) of receiver oscillator, common to chassis. Adjust A7 from maximum inductance toward minimum inductance until oscillator operates. Disconnect VTVM and tune in the oscillator signal on an accurate receiver. The signal will appear 1680KC above the frequency of the channel in use. If not, readjust A7. If several channels are to be used, an average adjustment of A7 may be necessary to keep within operating frequency limits (± 1KC).
3. Connect DC probe of VTVM to point Ⓐ, common to chassis. Adjust the signal generator to channel 11 (27.085MC) and couple the signal to the antenna input. A direct connection may not be necessary unless the generator output is very low. Adjust A8 and A9 for maximum output.
4. Adjust signal generator to channel 11 (27.085MC) and couple the signal to the antenna input. A direct connection may not be necessary unless the generator output is very low. Set the channel selector to the fifth position (T). The tuning window lamp will come on. Set logging dial to one mark past 4. Adjust A10 for maximum output.

TRANSMITTER

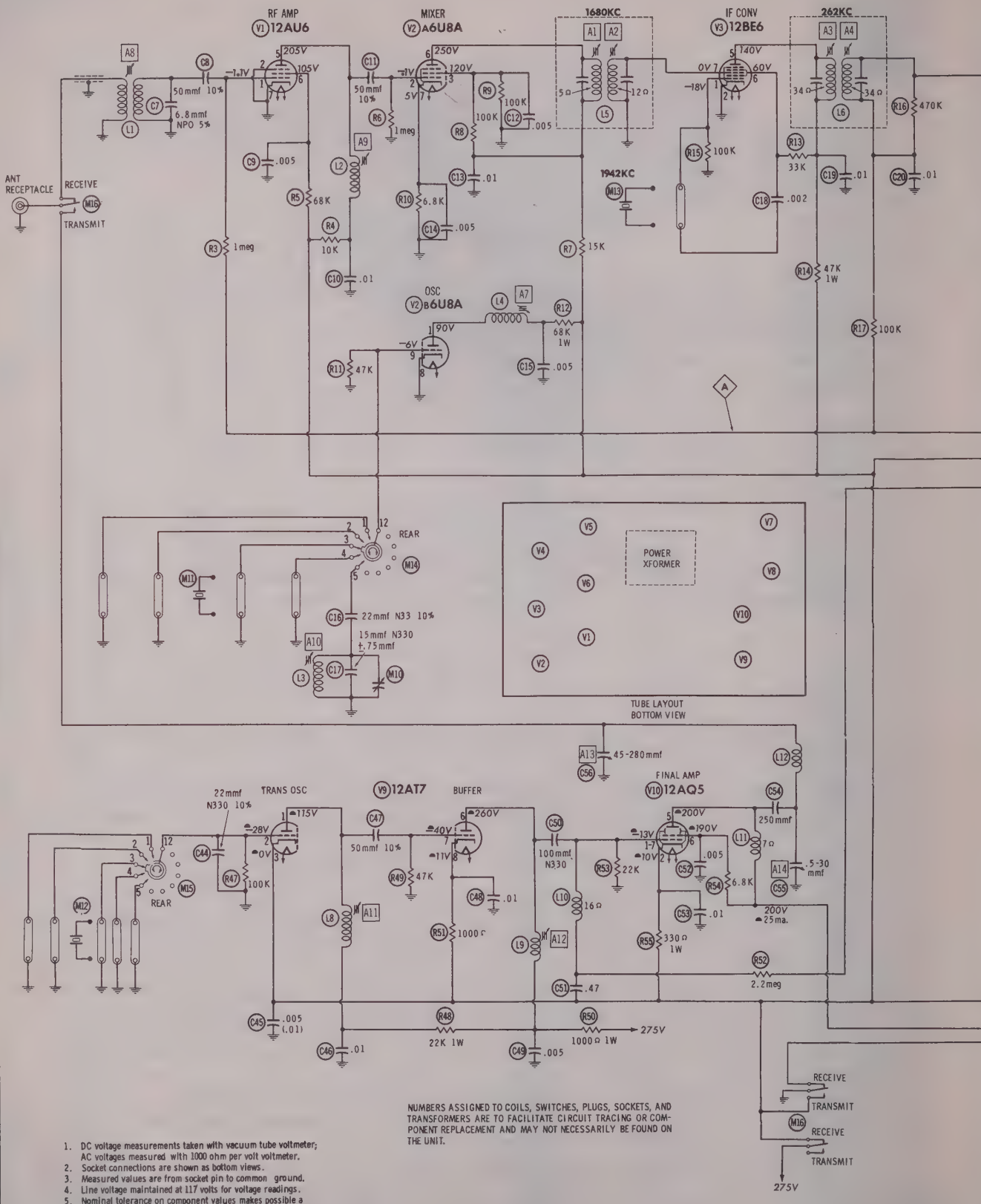
1. Connect DC probe of VTVM thru an RF choke to pin 7 (grid) of Buffer, common to chassis. Set A11 for minimum inductance. Press mic button and adjust A11 until oscillations begin. Continue adjusting for a meter reading of approximately -40V. Press and release button several times, making certain that the oscillator operates each time. If erratic operation is encountered, increase inductance of A11, maintaining a meter reading of -35 to -40V. Check transmitter frequency.
2. Connect DC probe of VTVM to pin 1 (grid) of Final Amp. Adjust A12 for maximum deflection. The VTVM should indicate no less than 8 volts.
3. Set A13 near maximum capacity. Using an output indicator, alternately adjust A13 and A14 for maximum output.
4. Install unit in cabinet and readjust A13 and A14 for maximum output. A13 is reached thru the front hole on the left side of the cabinet, -- A14 thru the rear hole.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KZ667

GLOBE MODEL
CB-200



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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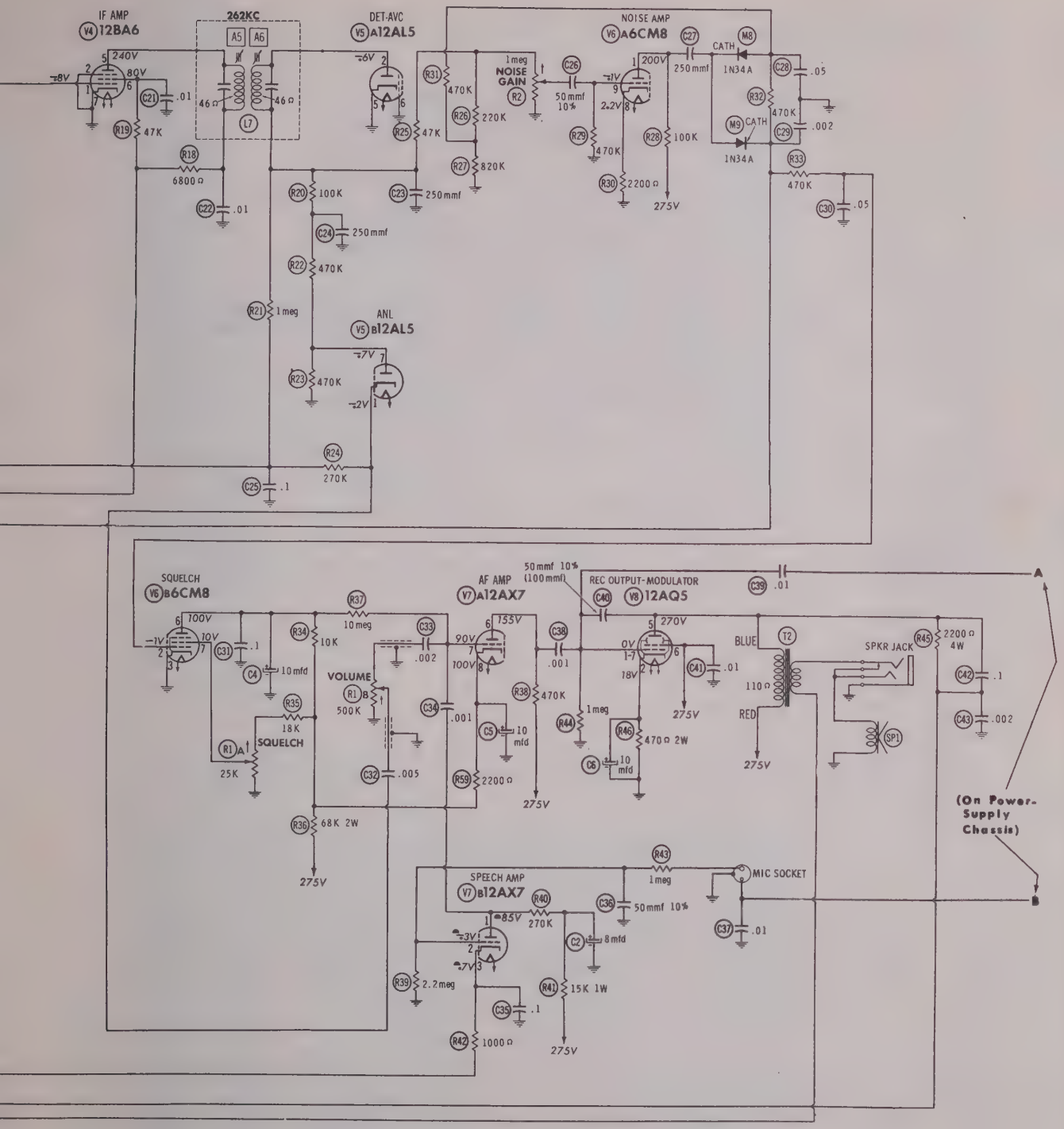
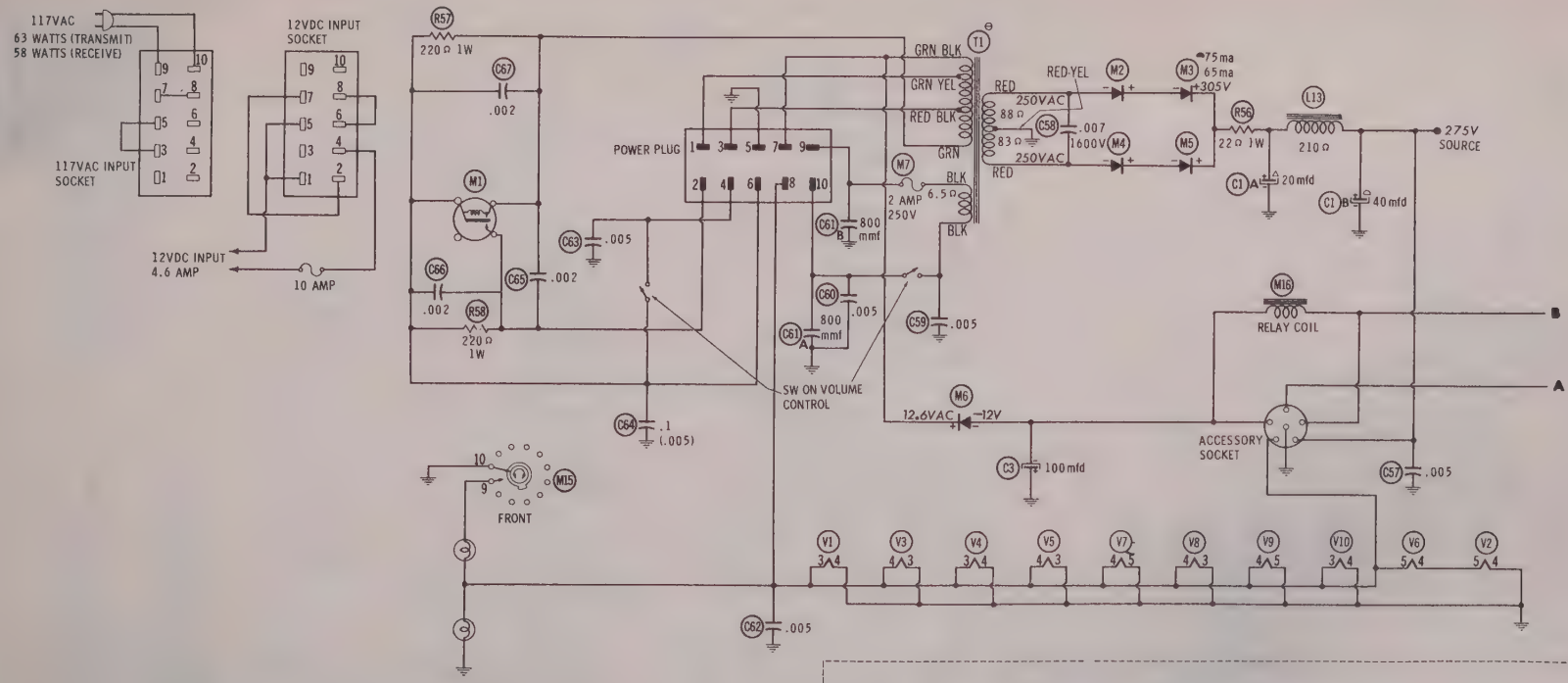


DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

GLOBE MODEL CB-200

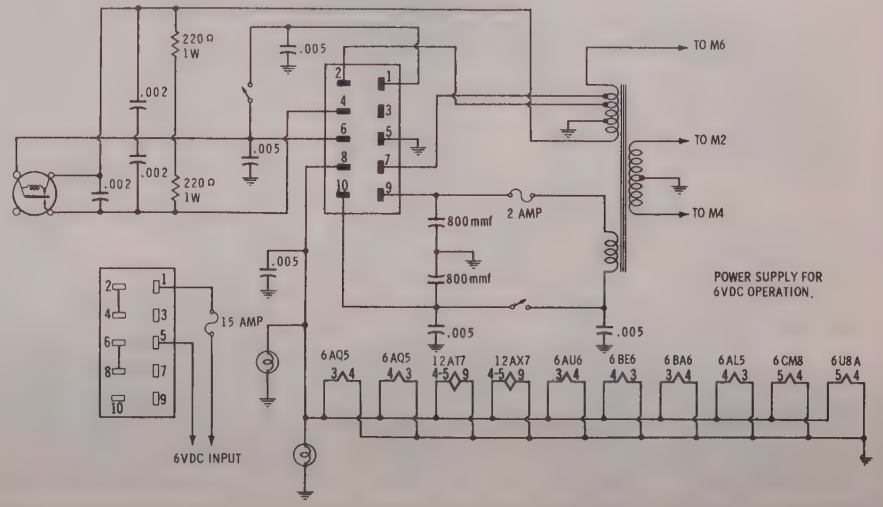


RESISTANCE READINGS

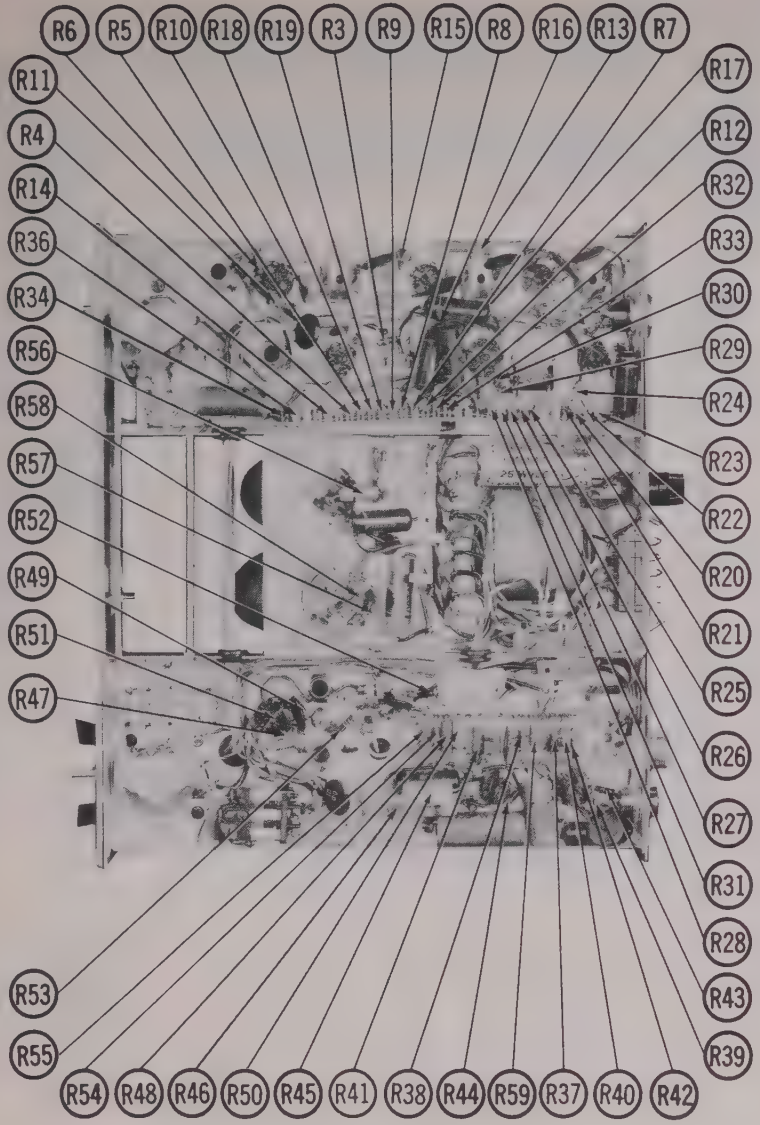
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU6	2.4meg	0Ω	FIL	FIL	†10K	†68K	0Ω		
V2	6U8A	†68K	1meg	†70K	FIL	FIL	†15K	6800Ω	0Ω	47K
V3	12BE6	100K	0Ω	FIL	FIL	†47K	†80K	12Ω		
V4	12BA6	1.5meg	0Ω	FIL	FIL	†7000Ω	†47K	0Ω		
V5	12AL5	1.5meg	320K	FIL	FIL	0Ω	0Ω	320K		
V6	6CM8	†100K	1meg	0Ω	FIL	FIL	†78K	5000Ω	2200Ω	470K
V7	12AX7	†285K	2.2meg	▬1000Ω	FIL	FIL	†470K	10meg	35K	NC
V8	12AQ5	NC	470Ω	FIL	FIL	†340Ω	†230Ω	1meg		
V9	12AT7	†23K	100K	▬0Ω	FIL	FIL	†1200Ω	47K	▬1000Ω	NC
V10	12AQ5	22K	▬330Ω	FIL	FIL	†2500Ω	†9300Ω	NC		

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
▬ MEASURED IN "TRANSMIT" POSITION.
† MEASURED FROM OUTPUT OF M3 AND M5.
NC NO CONNECTION

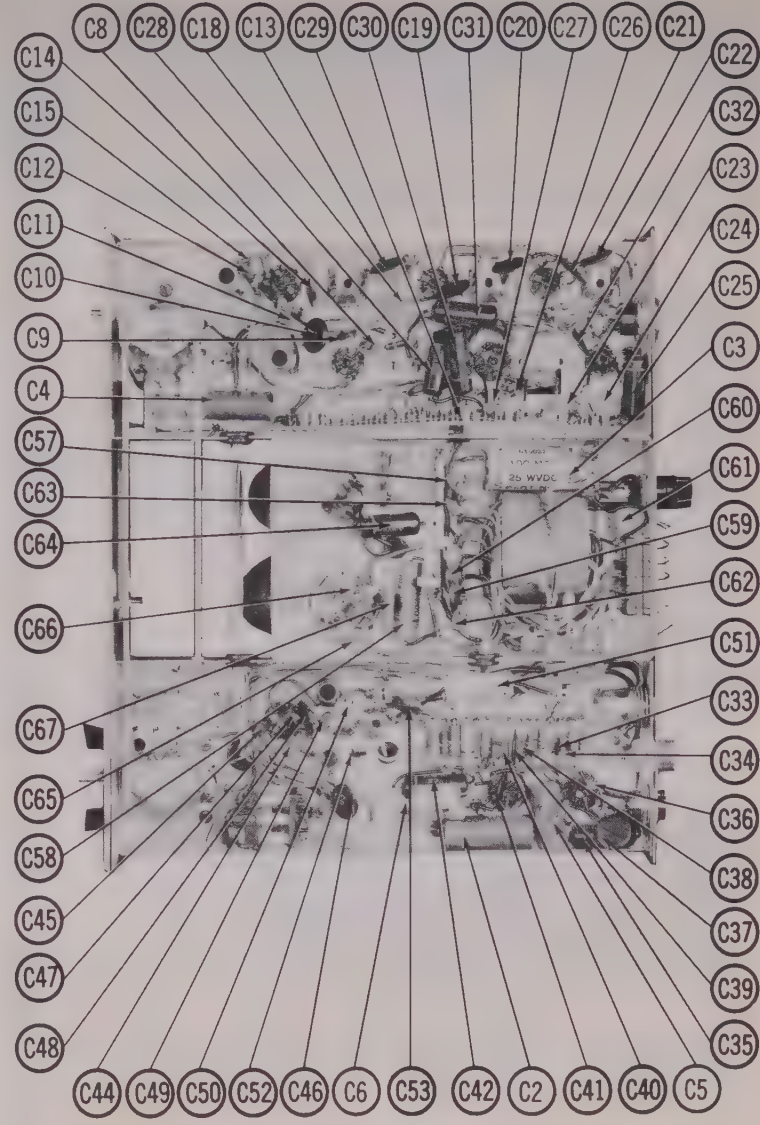
POWER SUPPLY CHASSIS



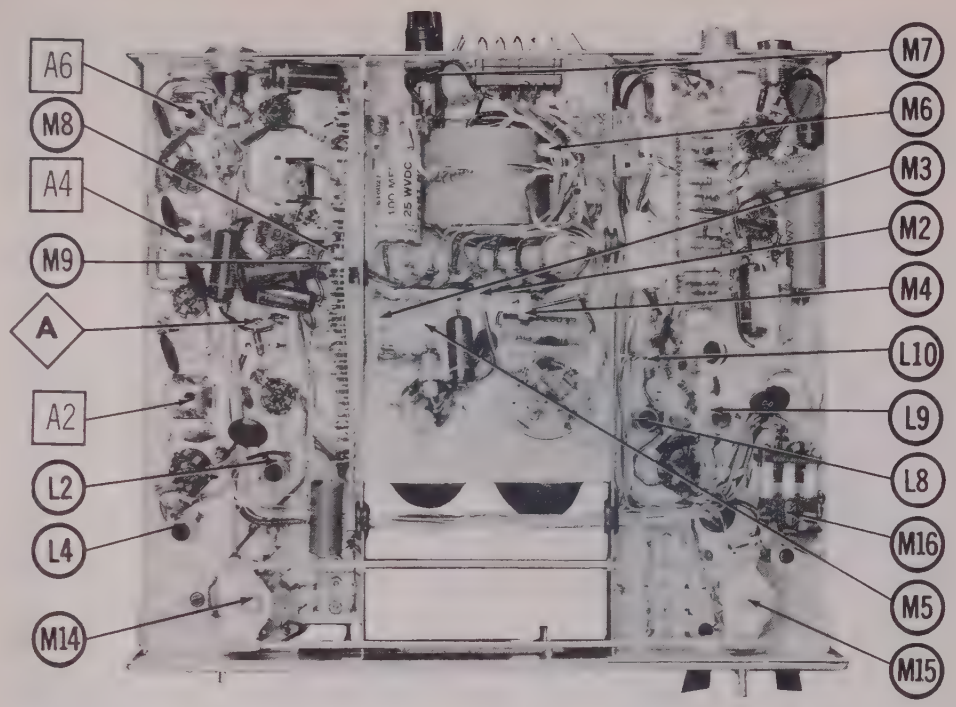
POWER SUPPLY FOR 6VDC OPERATION.



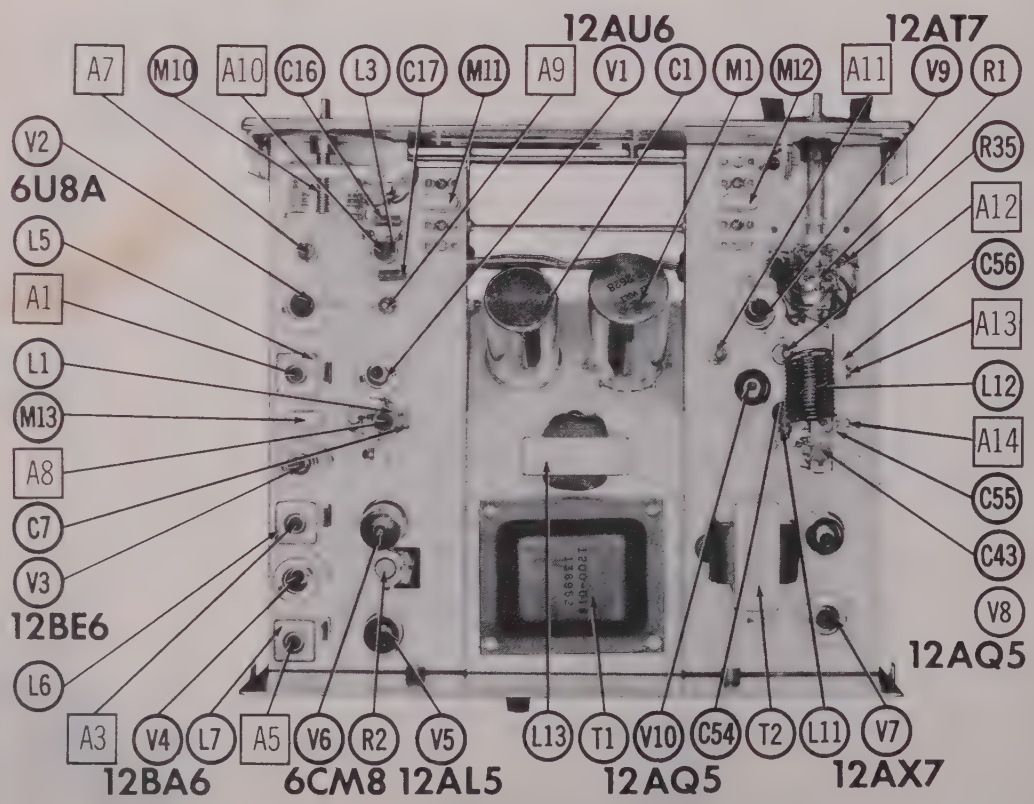
CHASSIS BOTTOM VIEW-RESISTOR IDENT.



CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW-ALIGN., INDUCTOR & MISC. IDENT.



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆)
V1	RF Amplifier	12AU6
V2	Mixer-Osc.	6U8A
V3	2nd IF Converter	12BE6
V4	IF Amplifier	12BA6
V5	Det. -AVC-ANL.	12AL5
V6	Noise Amp. -Squelch	6CM8
V7	AF Amp. -Speech Amp.	12AX7
V8	Rec. Output-Modulator	12AQ5
V9	Trans. Osc. -Buffer	12AT7
V10	Final Amp.	12AQ5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA GLOBE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲20	450	1106-020	AFH2-56	B0440	FP345.3	TMD-2645	TVL-2762	
B	▲40	450							
C2	8	350	1106-030	PRS1610	BR835	TC61	TD-8-350	TVA-1603	
C3	100	25	1106-019	PRS1270	BBR100-25	TC2501	TD-100-25	TVA-1207	
C4	10	150	1106-034	PRS1410	BBR10-150	TC42	TD-10-150	TVA-1406	
C5	10	150	1106-034	PRS1410	BBR10-150	TC42	TD-10-150	TVA-1406	
C6	10	25	1106-032	PRS1250	BBR10-25	TC22	TD-10-25	TVA-1204	

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	6.8 NPO 5%		NPO-SI 6.8	TCZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C8	50 10%		DI-50	DD-500	L10Q5	CCD-501	GP450	10TS-Q50
C9	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C10	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	50 10%		DI-50	DD-500	L10Q5	CCD-500	GP450	10TS-Q50
C12	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C15	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C16	22 N330 10%			TCA-22		*		10TCS-Q33
C17	15 N330 ± .75mmf			TCA-15		*		10TCS-Q15
C18	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C19	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	250		SI 250	D6-251	L10T25	CCD-251	GP325	10TS-T25
C24	250		SI 250	D6-251	L10T25	CCD-251	GP325	10TS-T25
C25	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C26	50 10%		DI-50	DD-503	L10Q5	CCD-500	GP450	10TS-Q50
C27	250		SI 250	D6-251	L10T25	CCD-251	GP325	10TS-T25
C28	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C29	.002		BPD-005	DD-202	BYA10D5	CCD-202	B-220	5HK-D20
C30	.05 200V		P288N-05	DD-502	CUB2S5	4DP-3-503	GEM-215	2TM-S50
C31	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-D10
C32	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C33	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C34	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C36	50 10%		DI-50	DD-500	L10Q5	CCD-500	GP450	10TS-Q50
C37	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C39	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	50 10%	(100) †	DI-50	DD-500	L10Q5	CCD-500	GP450	10TS-Q50
C41	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C42	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C43	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C44	22 N330 10%			TCA-33		*		10TCS-Q22
C45	.005	(.01) †	BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C46	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C47	50 10%		DI-50	DD-500	L10Q5	CCD-500	GP450	10TS-Q50

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C48	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C49	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C50	100 N330			TCA-100		*		10TCS-T10
C51	.47 100V		P288N-47		CUB2P47	1DP-4-474	GEM-2047	2TM-P47
C52	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C53	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C54	250		SI 250	D6-251	L10T25	CCD-251	B-250	10TS-T25
C55	.5-30	#1111-005				464		
C56	45-280	#1111-004						
C57	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C58	.007 1600V		P1684CM-007	DD16-007	CUB16D7	16DP-3-702	GEM-1627	MB-D7
C59	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C60	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C61A	800		BPD-0008	DD-801	L10T8	CCD-821	B-382	10TS-T80
B	800		BPD-0008	DD-801	L10T8	CCD-821	B-382	10TS-T80
C62	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C63	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C64	.1 200V	(.005) †	P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C65	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C66	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C67	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

† Alternate Value.

Globe Part Number.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA GLOBE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	25K	½	2300-019	F1-27		†QJ-1543R	■ UE4219-S	Squelch
B	500K	½		R2-41				Volume
C	Switch	½		KR-2				Power Off-On
R2	1meg	1/4	2300-021					Noise Gain

† "CONCENTRIKIT" Equivalent: K-6 Kit with Base Elements and Shafts: B11-120, P13-214 (Panel)
(Not available as a factory assembled unit). B13-133, R1-223 (Rear)
76-2 (Switch)

■ "STA-LOC" Equivalent: FA253L, RU55A, OS2437, IS2812, U842.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No	WORKMAN TV PART No.	REMARKS
R3	1meg			
R4	10K			
R5	68K			
R6	1meg			
R7	15K			
R8	100K			
R9	100K			
R10	6800Ω			
R11	47K			
R12	68K 1W			
R13	33K			
R14	47K 1W			
R15	100K			
R16	470K			
R17	100K			
R18	6800Ω			
R19	47K			
R20	100K			
R21	1meg			
R22	470K			
R23	470K			
R24	270K			
R25	47K			
R26	220K			
R27	820K			
R28	100K			
R29	470K			
R30	2200Ω			
R31	470K			
R32	470K			
R33	470K			
R34	10K			
R35	18K			
R36	68K 2W			
R37	10meg			
R38	470K			
R39	2.2meg			
R40	270K			
R41	15K 1W			
R42	1000Ω			

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R43	1meg				R52	2.2meg			
R44	1meg				R53	22K			
R45	2200Ω 4W	PW5-2200	5W-59-2200		R54	6800Ω			
R46	470Ω 2W				R55	330Ω 1W			
R47	100K				R56	22Ω 1W			
R48	22K 1W				R57	220Ω 1W			
R49	47K				R58	220Ω 1W			
R50	1000Ω 1W				R59	2200Ω			
R51	1000Ω								

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		GLOBE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant.	1400-128	TV-116	6250	RTC-8568	T232A	
L2	RF	1400-105	TV-112	6171-A	RTC-8609	T216	
L3	Osc.	1400-116	TV-112	6171-A	RTC-8609	T216	
L4	Osc. Plate	1400-103	TV-112	6171-A	RTC-8609	T216	
L5	1680KC IF	1205-001A					
L6	1st 262KC IF	1205-006	BC-350	12-H1	RTC-8638	T604	
L7	2nd 262KC IF	1205-007	BC-351	12-H2	RTC-8639	T605	
L8	Osc. Plate	1400-117					
L9	Buffer Plate	1400-119	TV-112	6171-A	RTC-8609	T216	
L10	RF Choke(750uh)	1301-006	TV-206	6148	RTC-8583	T327	
L11	RF Choke (120uh)	1301-025	TV-195	6153	RTC-8585	T307	
L12	Final Plate	1400-129					

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	GLOBE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No	
L13	.075A	210Ω	3.5HY	1300-017					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	AC OPERATION			GLOBE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
	PRI.	SEC. 1	SEC. 2						
T1	117V @ .7A	500VCT @ .075A DC	12.6V @ 1.6A	1200018①					① Part #1200-019 used for 6V DC Operation.
	DC OPERATION								
	12.6VCT @ 3A	500VCT @ .075A							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	GLOBE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5800Ω	3-4Ω	1203-014				S-5Z	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	GLOBE PART No.	QUAM PART No.	
SP1	3"x 5"	PM	3-4Ω	4002-006	35A05	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				GLOBE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6	115%	4001-001	6301	G1601	6301	12V Versions
	Interrupter	6.3	115%	4001-002	5301	1601	5301	6V Versions

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	GLOBE PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M2	.075A	3700-061	1N1763	F4	SR500	
M3	.075A	3700-061	1N1763	F4	SR500	
M4	.075A	3700-061	1N1763	F4	SR500	
M5	.075A	3700-061	1N1763	F4	SR500	
M6	.100A	3700-014	1N1763	2F4	SR200	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			GLOBE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M7	3AG	2A 250V	1500-011		312002 (3AG 2A 250V)	342001	AGC 2	HKP
		10A	1500-009①					
		15A	1500-012②					

① Part of 12.6V Input Cable. ② Part of 6.3V Input Cable.

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		GLOBE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M8	1N34A	3700-002		1N34A	1N34A	Squelch Rectifier
M9	1N34A	3700-002		1N34A	1N34A	Squelch Rectifier

MISCELLANEOUS

ITEM No.	PART NAME	GLOBE PART No.	NOTES
M10	Variable Cap.	1105-031	1 Gang, Receiver Tuning
M11	Crystal	Specify Channel	Receiver
M12	Crystal	Specify Channel	Transmit
M13	Crystal		1942 KC
M14	Switch	2100-034	Receiver Channel
M15	Switch	2100-034	Transmit Channel
M16	Relay	3500-015	Transmit-Receive
M17	Microphone	4000-008	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	2600-021	Tuning
Knob	2600-024	Channel Selector
Knob	2600-022	Volume
Knob	2600-023	Squelch
Cabinet	1700-034	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

HEATH
MODEL GWW-30

TRADE NAME	Heath Model GWW-30
MANUFACTURER	Heath Co., A Subsidiary of Daystrom, Inc., Benton Harbor, Michigan
TYPE SET	Battery Operated Transistorized Portable Citizens Band Transmitter-Receiver
POWER SUPPLY	9 Volts DC RATING 12MA @ 9 Volts DC (Receive) 25MA @ 9 Volts DC (Transmit)
TUNING RANGE	Any One of Citizens Band Channels 1 thru 23

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KZ806

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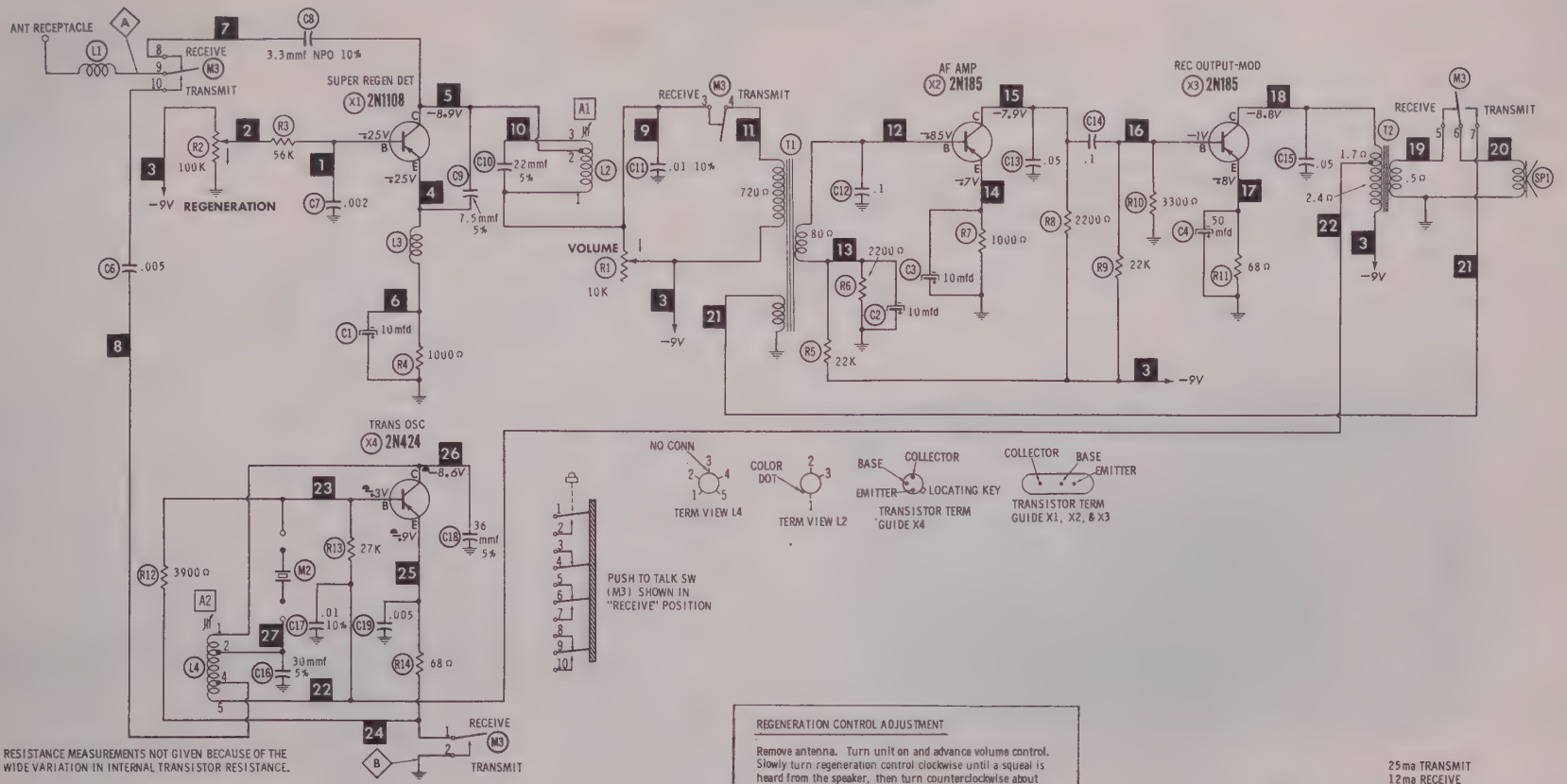

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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REGENERATION CONTROL ADJUSTMENT

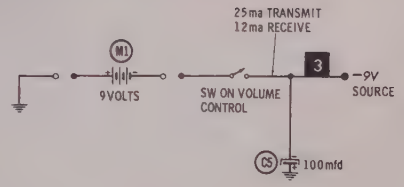
Remove antenna. Turn unit on and advance volume control. Slowly turn regeneration control clockwise until a squeal is heard from the speaker, then turn counterclockwise about 1/4 turn until squeal is no longer heard. Depress and release transmit button. A hiss should be heard. If not, slowly turn regeneration control clockwise until a hiss is heard each time the transmit button is released.

RECEIVER ALIGNMENT

Insert antenna. Adjust A1 for best reception from a transmitter placed far enough away to produce a weak signal.

TRANSMITTER ALIGNMENT

Remove antenna and connect a lamp bulb from point A to point B. Depress transmit button and adjust A2 for maximum bulb brilliance. The bulb should glow each time the button is depressed. If not, adjust A2 slowly clockwise until the bulb does glow each time.
NOTE: The glow of the bulb will be dim because of the low RF output.



HEATH MODEL GWW-30

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	2N1108	Superregen. Det.	2N412		PNP
X2	2N185	AF Amplifier	2N408	2N633	PNP
X3	2N185	Rec. Output-Mod.	2N408	2N633	PNP
X4	2N424	Trans. Osc.			PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	HEATH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	10	10	25-54	PTT39	NLW10-15	MT1-5	TT12X10	MLV10-10	TE-1114
C2	10	10	25-54	PTT39	NLW10-15	MT1-5	TT12X10	MLV10-10	TE-1114
C3	10	10	25-54	PTT39	NLW10-15	MT1-5	TT12X10	MLV10-10	TE-1114
C4	50	10	25-55	PTT45	NLW50-10	MT1-16	TT10X50	MLV50-10	TE-1119
C5	100	10	25-56	PTT46	NLW100-12	MT1-19	TT15X100	MLV100-10	TE-1119.3

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.005		DI-5000	DM-502	H-05S5	CCD-502	TA-250	TG-D50
C7	.002		DI-2000	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C8	3.3 NPO 10%		NPO-DI 3.3	DTZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C9	7.5 5%							
C10	22 5%		1469-000022	TCZ-22	22R5Q22	CM-19B-220J		MS-422
C11	.01 10%		DI-10000			CCD-103		10TS-S10
C12	.1		C80V104AM	DA-104	H-05P1		TA-010	TG-P10
C13	.05		BPD-05	DD-503	H-05S5		TA-150	TG-S50
C14	.1		C80V104AM	DA-104	H-05P1		TA-010	TG-P10
C15	.05		BPD-05	DA-503	H-05S5		TA-150	TG-S50
C16	30 5%		1469-00003	TCZ-30	22R5Q3	CM-19B-300J		MS-43
C17	.01 10%		DI-10000			CCD-103		10TS-S10
C18	36 5%		1469-000036	TCZ-36	22R5Q36	CM-19B-360J		MS-436
C19	.005		BPD-005	DM-502	H-05D5	CCD-502	TA-250	TG-D50

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	HEATH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	10K	1/4	19-54		44S-10K-W		MLC14A-S	Volume & Switch
R2	100K	1/4	10-109					Regeneration

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	56K				R9	22K			
R4	1000Ω				R10	3300Ω			
R5	22K				R11	68Ω			
R6	2200Ω				R12	3900Ω			
R7	1000Ω				R13	27K			
R8	2200Ω				R14	68Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		HEATH PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant. Loading(2.2uh)	40-319	BC-563	4606	RTC-8517	T857	
L2	Rec. Osc.	40-317					
L3	RF Choke(15uh)	45-51	BC-566	4624	RTC-8524	T862	
L4	Transmitt Osc.	40-318					

PRINTED BOARD

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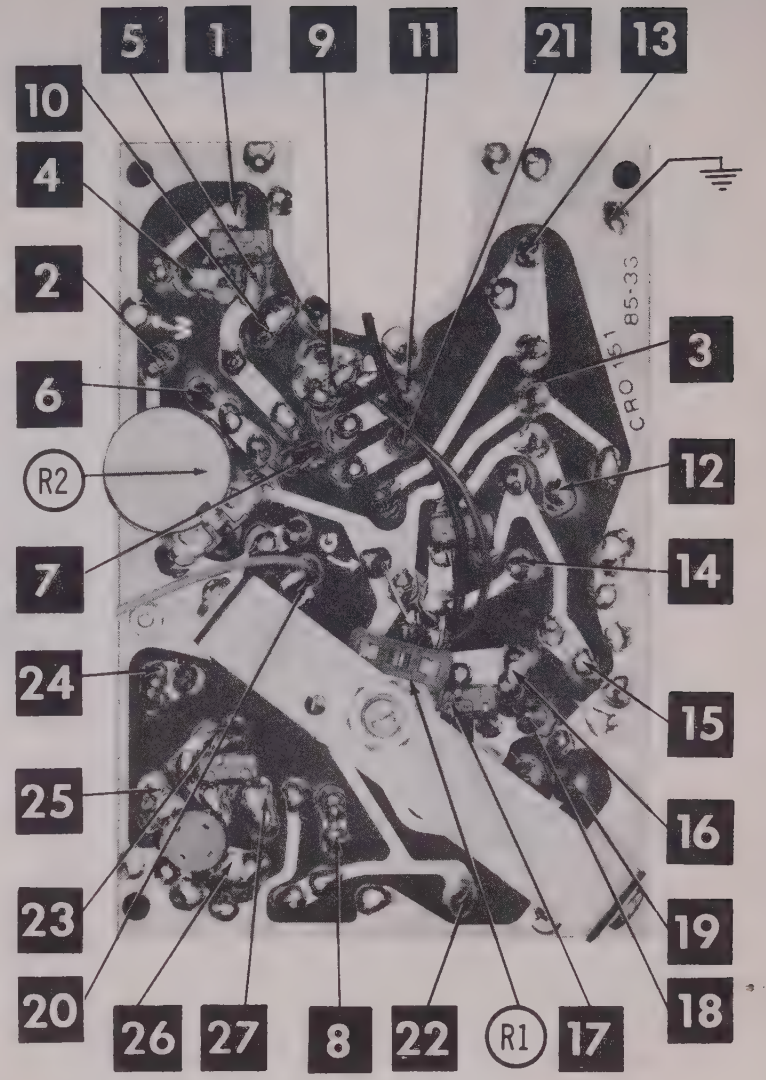


PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	HEATH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3.5	:1 SEC. 1	51-66					
	40	:1 SEC. 2						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	HEATH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	650Ω Tap @ 600Ω	3-4Ω	51-67					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	HEATH PART No.	QUAM PART No.	
SP1	3"	PM	3-4Ω	401-37		

BATTERIES

ITEM No.	VOLTAGE	HEATH PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			2N6		246		M-1602	

MISCELLANEOUS

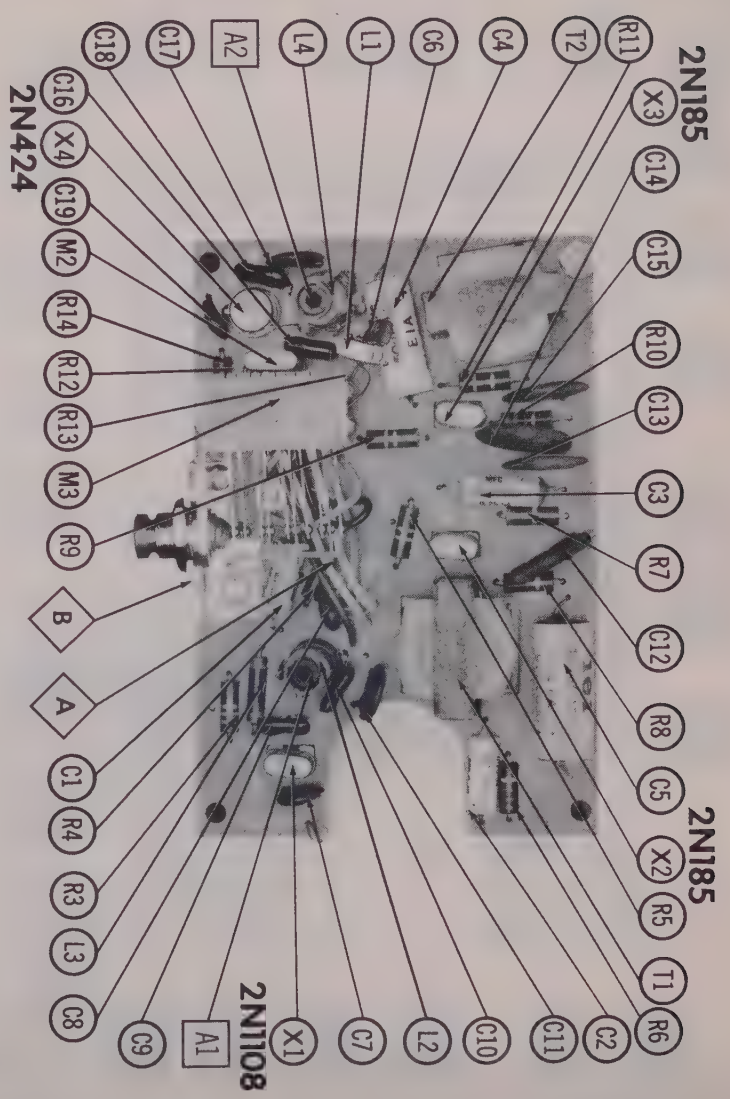
ITEM No.	PART NAME	HEATH PART No.	NOTES
M2	Crystal, Transmit	404-67	26.965MC Channel 1
		404-68	26.975MC Channel 2
		404-69	26.985MC Channel 3
		404-70	27.005MC Channel 4
		404-71	27.015MC Channel 5
		404-72	27.025MC Channel 6
		404-73	27.035MC Channel 7
		404-74	27.055MC Channel 8
		404-75	27.065MC Channel 9
		404-76	27.075MC Channel 10
		404-77	27.085MC Channel 11
		404-78	27.105MC Channel 12
		404-79	27.115MC Channel 13
		404-80	27.125MC Channel 14
		404-81	27.135MC Channel 15
		404-82	27.155MC Channel 16
		404-83	27.165MC Channel 17
		404-84	27.175MC Channel 18
		404-85	27.185MC Channel 19
		404-86	27.205MC Channel 20
		404-87	27.215MC Channel 21
		404-88	27.225MC Channel 22
		404-89	27.255MC Channel 23
M3	Switch	64-10	Push to talk (4 Section Pushbutton Type)
M4	Antenna	142-35	40" Whip, Collapsible to 7 1/2"
	Printed Board	85-33F373	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	462-109	
Leather Case	93-4	Includes Strap

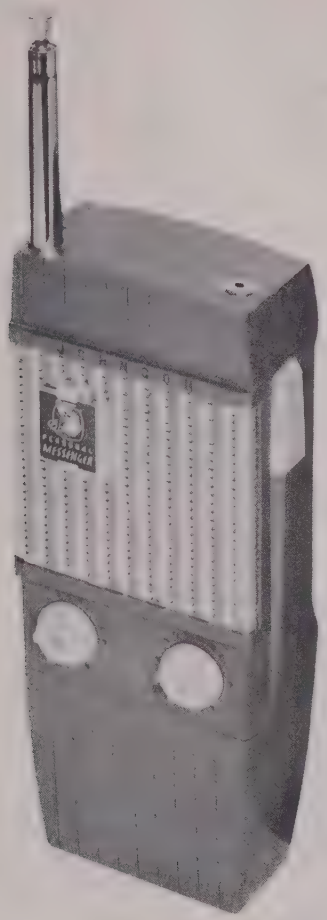
CHASSIS—TOP VIEW



WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors

JOHNSON VIKING MODEL PERSONAL MESSENGER (242-101-1)



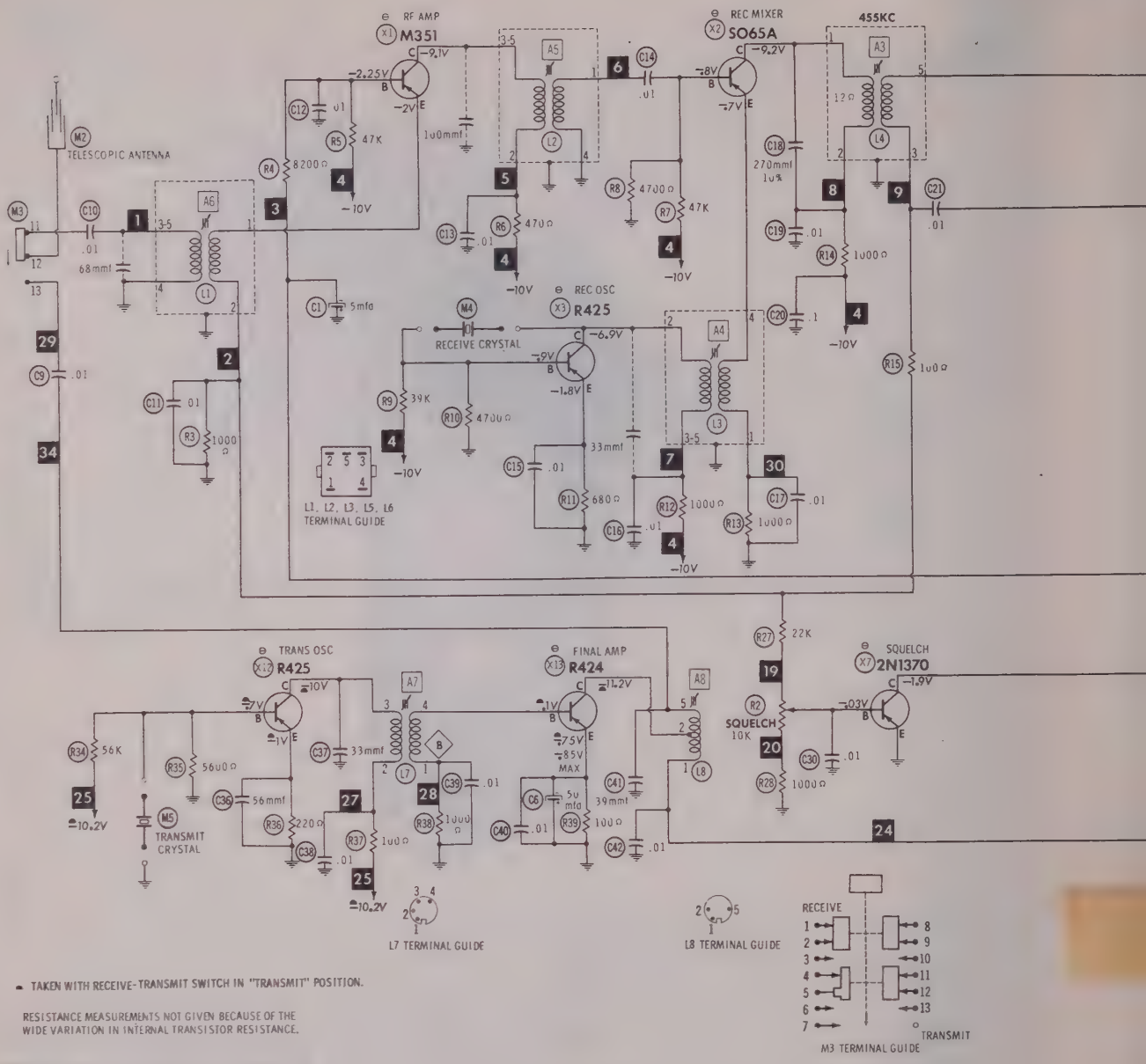
TRADE NAME	Johnson Viking Model Personal Messenger (242-101-1)
MANUFACTURER	E. F. Johnson Co., Waseca, Minnesota
TYPE SET	Battery Operated Single Channel Transistorized Portable Citizens Band Transmitter-Receiver
POWER SUPPLY	12 Volts DC
RATING	Receive: 15MA @ 12 Volts DC (No Signal, Min. Volume) 20MA @ 12 Volts DC (Signal, Normal Volume) Transmit: 21MA @ 12 Volts DC (Unmodulated)
TUNING RANGE	Any one of Citizens Band Channels 1 thru 23

JOHNSON VIKING MODEL PERSONAL MESSENGER (242-101-1)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

LY431



- TAKEN WITH RECEIVE-TRANSMIT SWITCH IN "TRANSMIT" POSITION.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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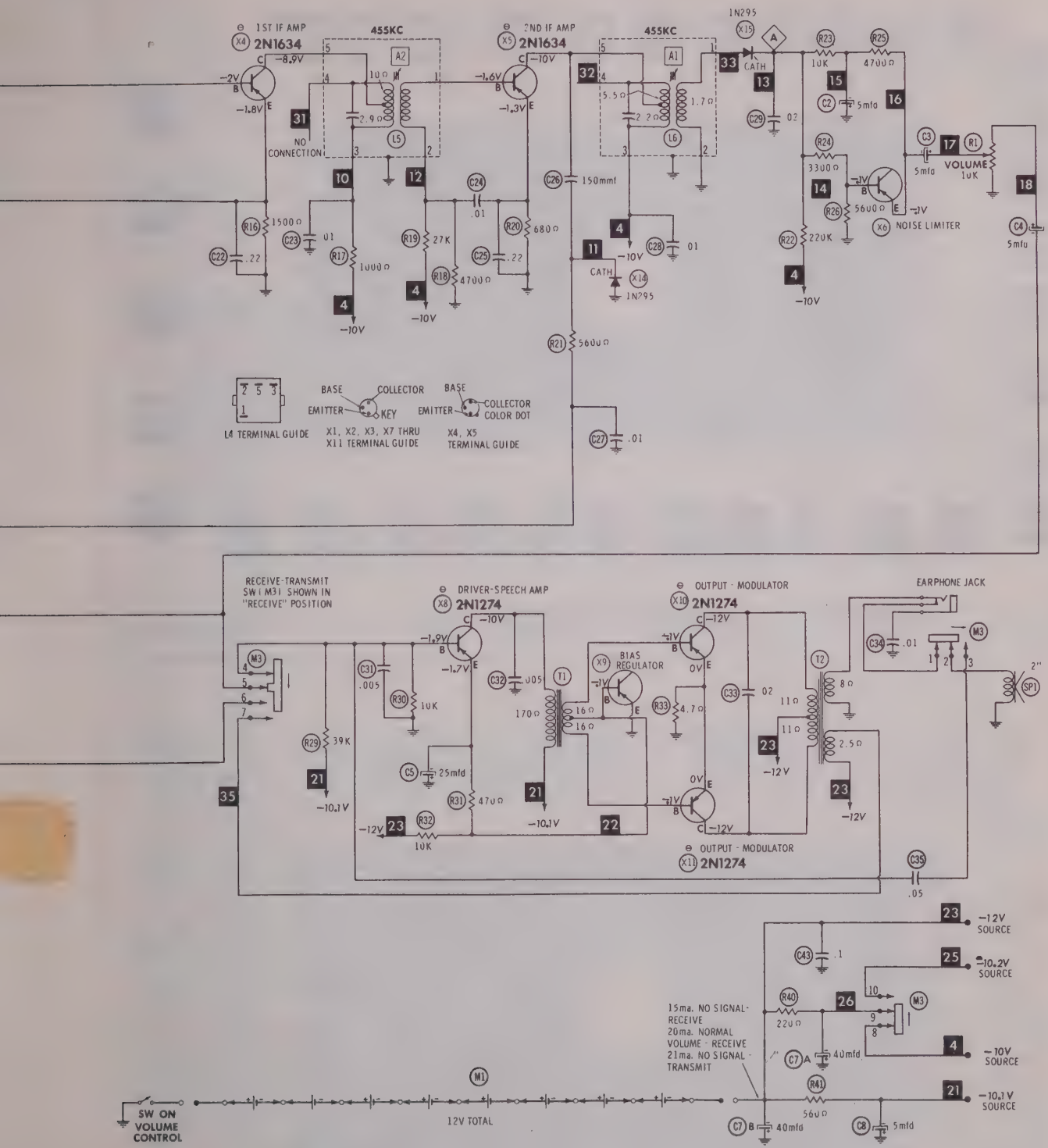
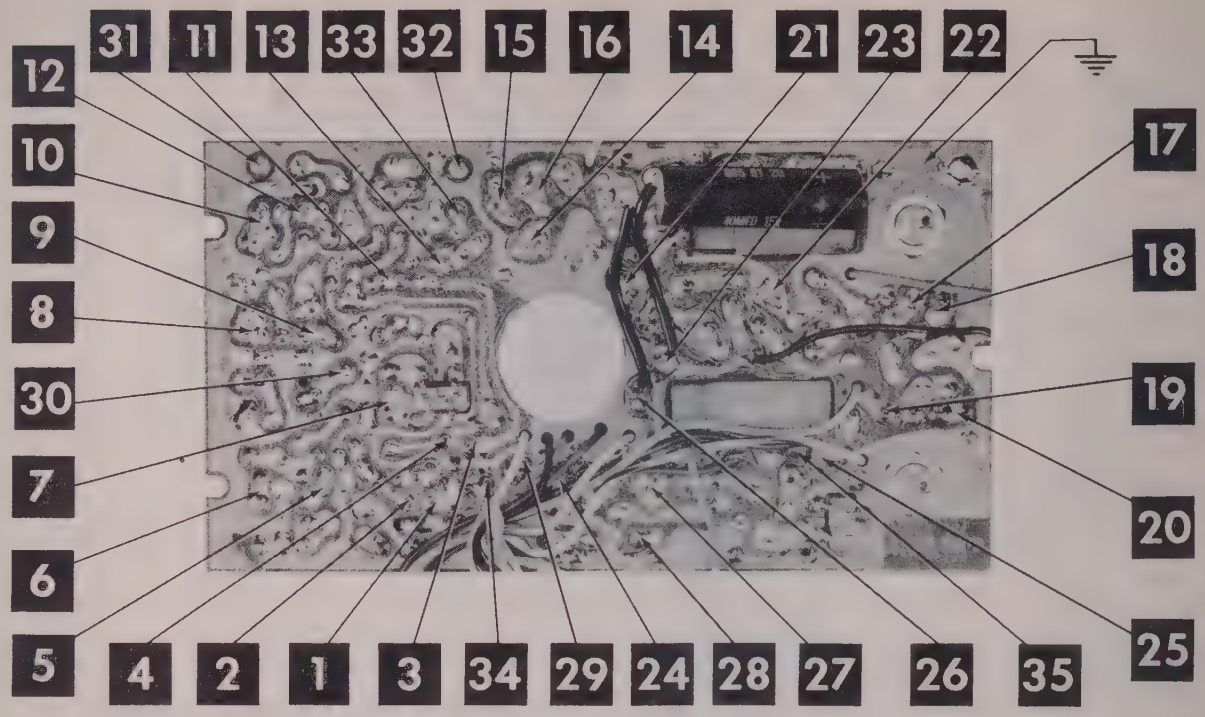
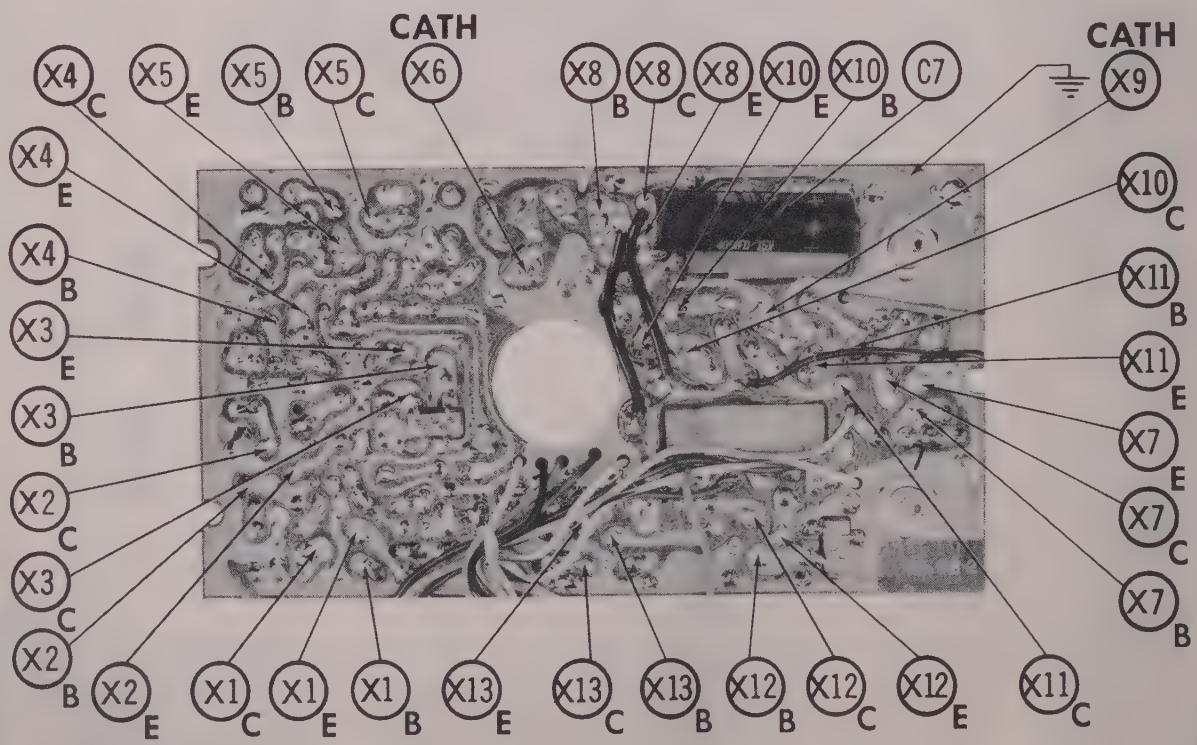


JOHNSON VIKING MODEL
PERSONAL MESSENGER (242-101-1)

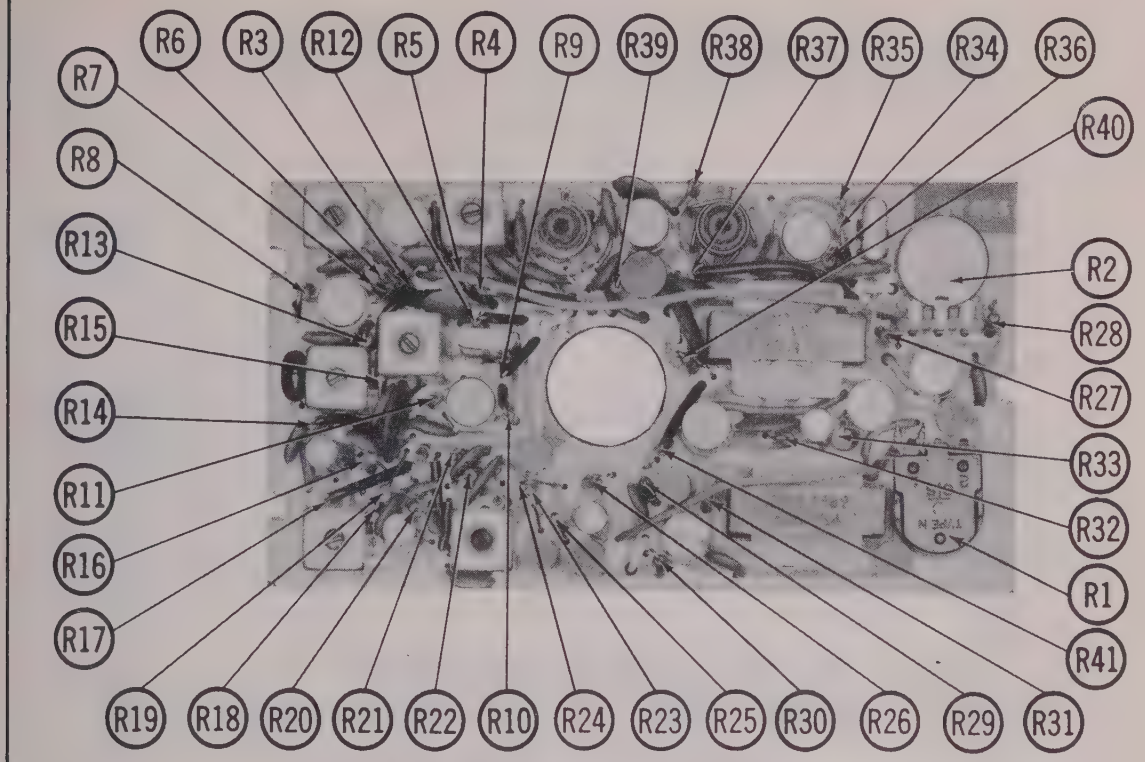


A Howard W. Sams CIRCUITRACE® Photo

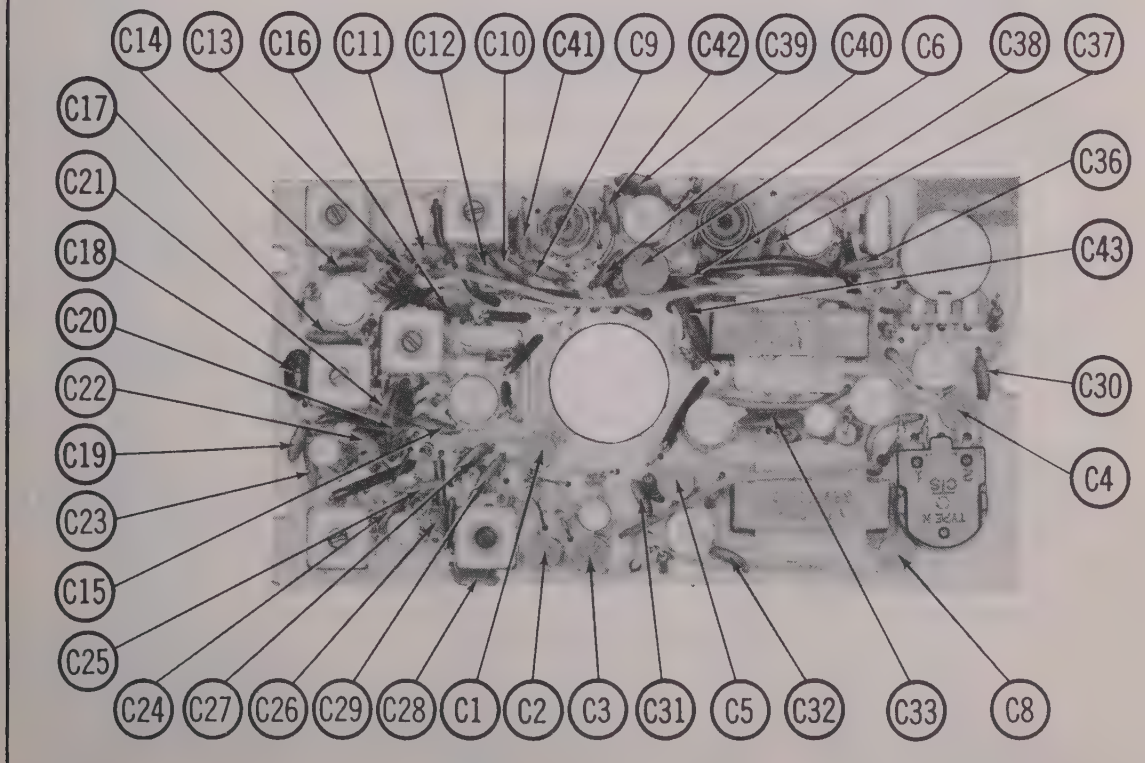
PRINTED BOARD



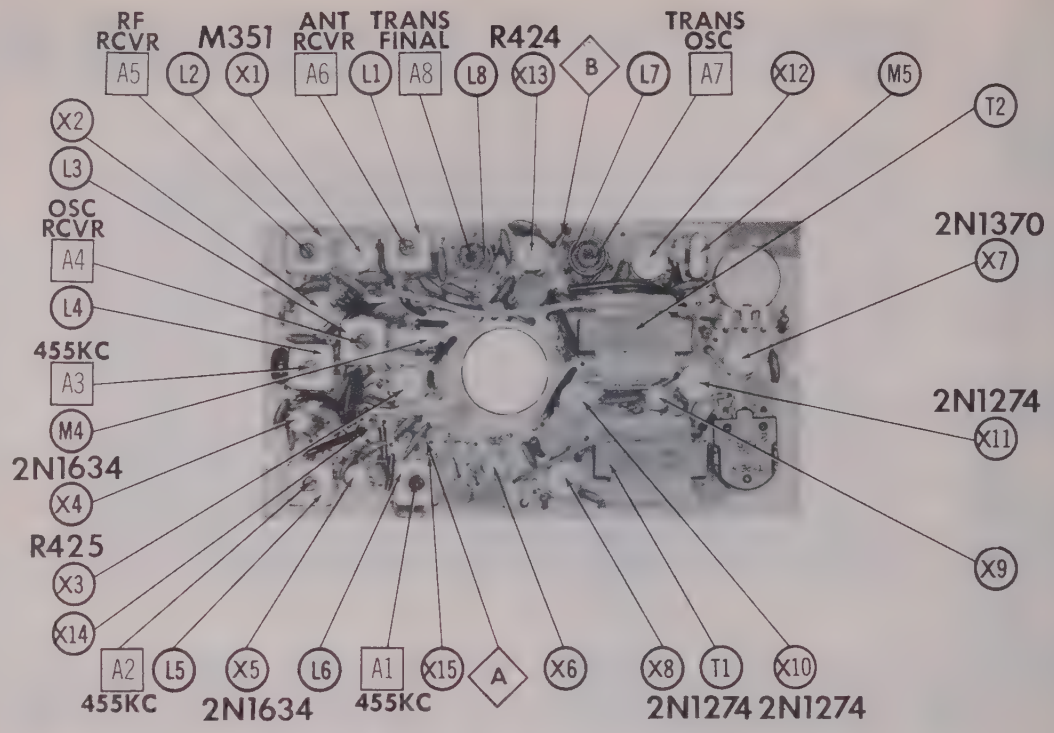
PRINTED BOARD — TRANSISTOR TERMINAL CONNECTIONS



CHASSIS TOP VIEW — RESISTOR IDENT.



CHASSIS TOP VIEW — CAPACITOR IDENT.



CHASSIS—TOP VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Best results will be achieved when adjusting A6 and A8 if the antenna normally used is connected, and the unit is as nearly in the cabinet as possible.

Suggested Alignment Tools:

A1 thru A8.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

RECEIVER ALIGNMENT

Connect DC probe of VTVM to Point Ⓐ, common to ground.

	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1.	Connect high side to base of Mixer (X2), common to B-. Tune to 455KC (Unmod.).	Unused Channel	A1, A2, A3	Disable oscillator by unplugging crystal. Adjust for maximum deflection. Reinsert crystal.
2.	Connect high side to antenna input. Common to B-.	Channel Frequency	A4	Adjust for maximum deflection while rocking A4. Note rate of drop-off on each side of peak and set A4 just below peak in direction of gradual drop-off.
3.	"	Channel Frequency	A5, A6	Adjust for maximum deflection.

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
4.		DC probe to Point Ⓑ, common to B-.	A7	Key transmitter and adjust. A7 for maximum deflection. Rock A7 to each side of peak and note rate of drop-off. Set A7 just before peak in direction of gradual drop-off.
5.	Connect dummy load and RF Wattmeter or antenna. Tune to center channel.	RF Wattmeter or Field Strength meter.	A9	Key transmitter and adjust for maximum indication.

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No.	8530 (Solid 22AWG) 8524 (Stranded 22AWG) 8570 (Stranded 26AWG)	Available in 12 Colors

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	M351	RF Amplifier	2N1171		PNP
	TA2112*	RF Amplifier			PNP
X2	SO65A	Rec. Mixer	2N1179		PNP
	TA2113*	Rec. Mixer			PNP
X3	R425	Rec. Osc.	2N1178		PNP
	TA2114*	Rec. Osc.			PNP
X4	2N1634	1st IF Amp.	2N1634		PNP
	2N1638*	1st IF Amp.			PNP
X5	2N1634	2nd IF Amp.	2N1634		PNP
	2N1638*	2nd IF Amp.			PNP
X6	22.3903 #	Noise Limiter	1N2326		
X7	2N1370	Squelch	2N406	2N362	PNP
	2N406*	Squelch			PNP
X8	2N1274	Driver-Speech Amp.	2N591	2N360	PNP
	2N591*	Driver-Speech Amp.			PNP
X9	22.3902 #	Bias Regulator	1N2326		
X10	2N1274	Output-Modulator	2N217	2N360	PNP
	2N217*	Output-Modulator			PNP
X11	2N1274	Output-Modulator	2N217	2N360	PNP
	2N217*	Output-Modulator			PNP
X12	R425	Trans. Osc.	2N1178		PNP
	TA2115*	Trans. Osc.			PNP
X13	R424	Final Amp.	2N1177		PNP
	TA2116*	Final Amp.			PNP

* Alternate
\# Johnson Viking Part No.

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES	NOTES
			RCA PART No.	SARKES TARZIAN PART No.	RAYTHEON PART No.	
X14		22.3901			1N295	AVC (1N295)
X15		22.3901			1N295	Detector (1N295)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Johnson Viking PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	5	15	22.1734-1	BCD15005	ECPB405	MT1-3	PET1535	MLV5-15	
C2	5	15	22.1734-1	BCD15005	ECPB405	MT1-3	PET1535	MLV5-15	
C3	5	15	22.1734-1	BCD15005	ECPB405	MT1-3	PET1535	MLV5-15	
C4	5	15	22.1734-1	BCD15005	ECPB405	MT1-3	PET1535	MLV5-15	
C5	25	3	22.1734-4	BCD3025	ECPB411	MT1-13	TT3X25	MLV25-3	
C6	50	3	22.1734-7	BCD3050	ECPB15		TT3X50	MLV50-3	
C7A	40	15	22.1734-6	PTT71	ECPAP12	MT1-16	TT15X40	MLV50-15	TE-1160
B	40	15		PTT71		MT1-16	TT15X40	MLV50-15	TE-1160
C8	5	15	22.1734-1			MT1-3		MLV5-15	

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C9	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C10	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C11	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C12	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C13	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C14	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C15	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C16	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C17	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C18	270 10%			TCZ-270	5R5T27	CCD-271	CNO-327	MS-327
C19	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C20	.1		C80V104AM	DA-104	H-05P1		TA-010	TG-P10
C21	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C22	.22 3V			UK-224	HCC3224P			HY-125
C23	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C24	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C25	.22 3V			UK-224	HCC3224P			HY-125
C26	150		DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15
C27	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C28	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C29	.02		C80V203AM	DDM-203	H-05S2	CCD-203	TA-120	TG-S20
C30	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C31	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C32	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C33	.02		C80V203AM	DDM-203	H-05S2	CCD-203	TA-120	TG-S20
C34	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C35	.05		C80V503AM	DDA-503	H-05S5		TA-150	TG-S50
C36	56		DI-56	DD-560	L10Q56	CCD-560	GP456	10TS-Q56
C37	33		DI-33	DD-330	L10Q33	CCD-330	GP433	10TS-Q33
C38	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C39	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C40	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C41	39		DI-39	DD-390	L10Q39	CCD-390	GP439	10TS-Q39
C42	.01		C80V103AM	DM-103	H-05S1	CCD-103	TA-110	TG-S10
C43	.1		C80V104AM	DA-104	H-05P1		TA-010	TG-P10

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			Johnson Viking PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	10K	22.1761				
R2	Squelch	10K	22.1762				

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS
R3	1000Ω			
R4	8200Ω			
R5	47K			
R6	470Ω			
R7	47K			
R8	4700Ω			
R9	39K			
R10	4700Ω			
R11	680Ω			
R12	1000Ω			
R13	1000Ω			
R14	1000Ω			
R15	100Ω			
R16	1500Ω			
R17	1000Ω			
R18	4700Ω			
R19	27K			
R20	680Ω			
R21	5600Ω			
R22	220K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS
R23	10K			
R24	3300Ω			
R25	4700Ω			
R26	5600Ω			
R27	22K			
R28	1000Ω			
R29	39K			
R30	10K			
R31	470Ω			
R32	10K			
R33	4.7Ω			
R34	56K			
R35	5600Ω			
R36	220Ω			
R37	100Ω			
R38	1000Ω			
R39	100Ω			
R40	220Ω			
R41	560Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Johnson Viking PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	
L1	Antenna	22.1732-11					
L2	RF Receiver	22.1732-12					
L3	Osc. Receiver	22.1732-13					
L4	1st IF	22.1791-4					
L5	2nd IF	22.1791-5					
L6	3rd IF	22.1791-6					
L7	Osc. Transmitter	22.1749-2					
L8	Final	22.1749-1					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Johnson Viking PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2	1	22.1682					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Johnson Viking PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	900Ω	90-100Ω	22.1681-2					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Johnson Viking PART No.	QUAM PART No.	
SP1	2"	PM	90-100Ω	22.1764		

BATTERIES

ITEM No.	VOLTAGE	Johnson Viking PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1½V			930		1015		M-15R	8 Required

MISCELLANEOUS

ITEM No.	PART NAME	Johnson Viking PART No.	NOTES
M2	Antenna	22.1793	Collapsible Whip
M3	Switch	22.1792	Transmit-Receive (Spring Loaded Momentary Contact Slide Type)
M4	Crystal, Receive	250-1001 *	* Catalog Number, Includes one receive and one transmit crystal for Channel 1. For other channels, replace last two digets with with channel number.
M5	Crystal, Transmit		
	Earphone	250-803	
	Adaptor	250-807	For Using Power from Cigarette Lighter on 12V Automobile

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	32.127-2	
Button	32.126	
Cabinet Front	23.1522	Includes Speaker Cover and Plastic Moisture Barrier
Cabinet Rear	23.1521	
Case, Carrying	250-806	

PHOTOFACT® Folder

LAFAYETTE MODELS HE-20AWX (Series 3, 4, 5), HE-20WX (Series 3)

TRADE NAME	Lafayette Models HE-20AWX Series 3, 4, 5; HE-20WX Series 3
SUPPLIER	Lafayette Radio, 165-08 Liberty Ave., Jamaica 33, N. Y.
TYPE SET	AC-Battery Operated 7 Tube Citizens Band Transmitter-Receiver
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery
RATING	51 Watts, .5 Amp. @117 Volts AC (or) 4.3 Amp. @12.6 Volts DC
TUNING RANGE	Any 4 of Citizens Band Channels 1 thru 23 (Receiver may be crystal controlled or manually tuned)

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

LAFAYETTE MODELS HE-20AWX (Series 3, 4, 5), HE-20WX (Series 3)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

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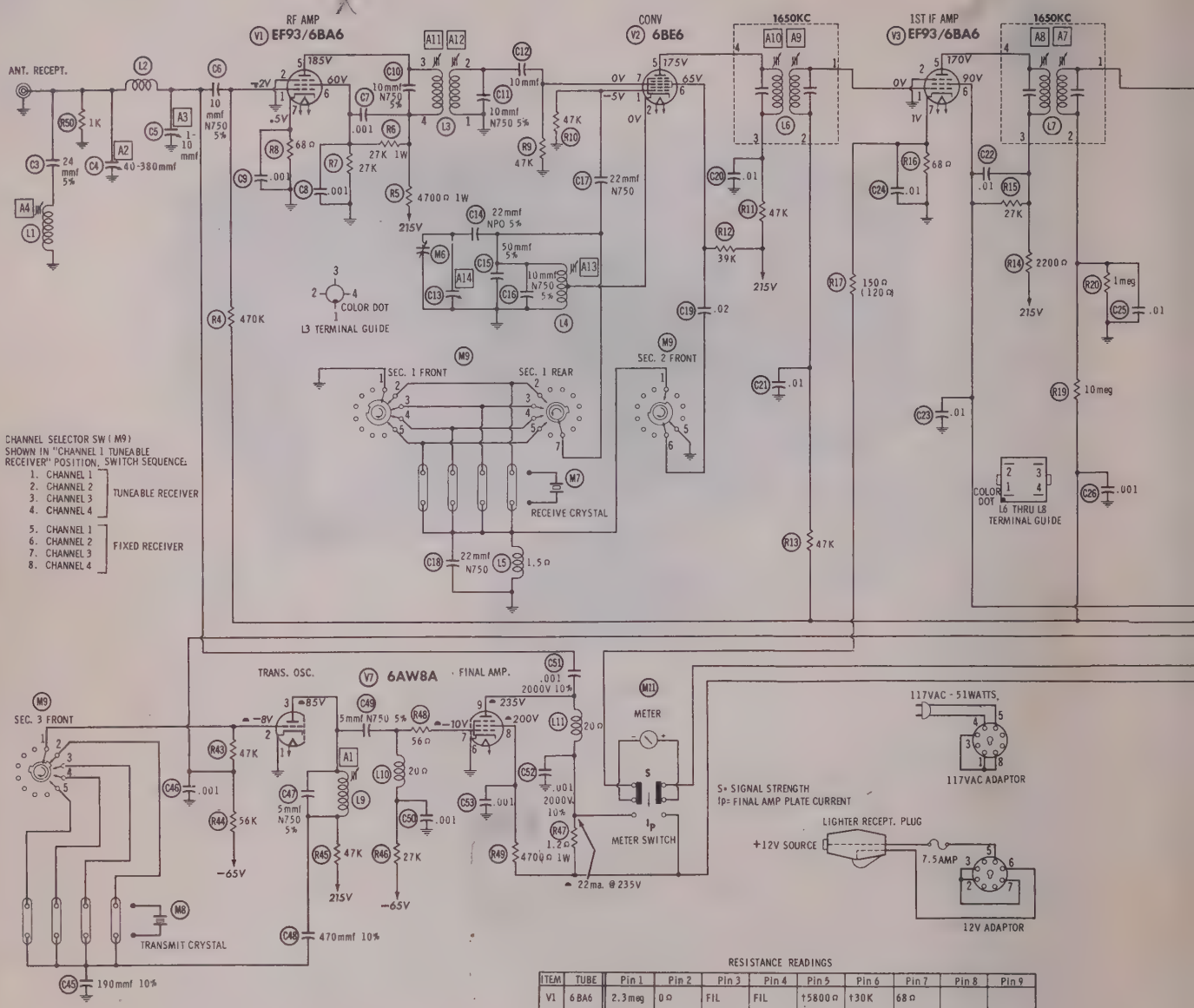

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BA6	2.3meg	0Ω	FIL	FIL	†5800Ω	†30K	68Ω		
V2	6BE6	47K	.2Ω	FIL	FIL	†48K	†40K	47K		
V3	EF93 6BA6	1.9meg	0Ω	FIL	FIL	†3300Ω	†30K	68Ω		
V4	6EA8	▲†123K	1meg	†50K	FIL	FIL	†3300Ω	200Ω	0Ω	2.2meg
V5	6T8	400K	600K	240K	FIL	FIL	2meg	0Ω	10meg	†470K
V6	6AQ5	NC	330Ω	FIL	FIL	†400Ω	†1100Ω	470K		
V7	6AW8A	0Ω	▲47K	▲†48K	FIL	FIL	0Ω	▲82K	▲†5100Ω	▲†440Ω

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION WITH METER DISCONNECTED UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "TRANSMIT" POSITION WITH MICROPHONE DISCONNECTED.
† MEASURED FROM OUTPUT OF M2.
NC NO CONNECTED

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.711).

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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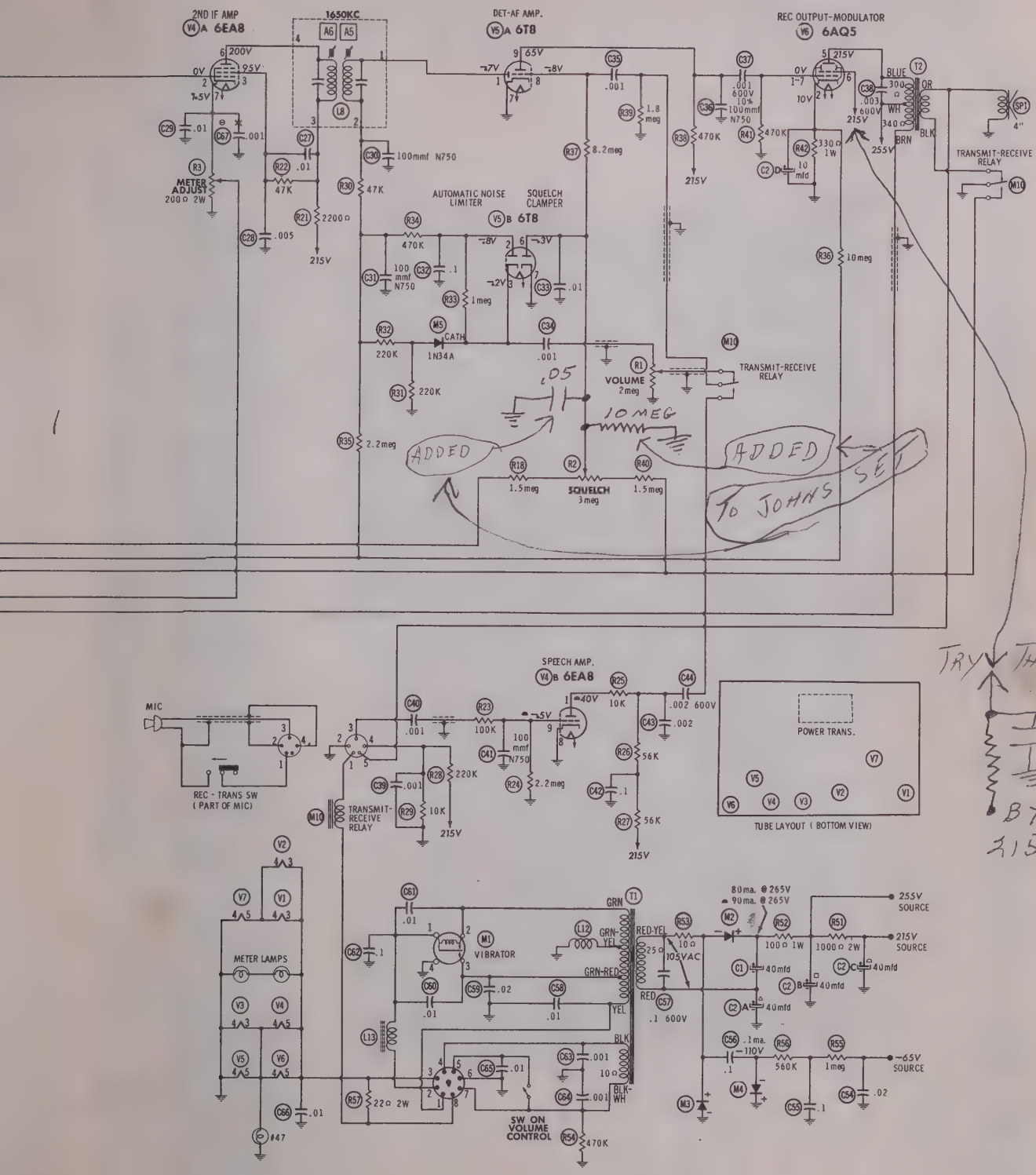
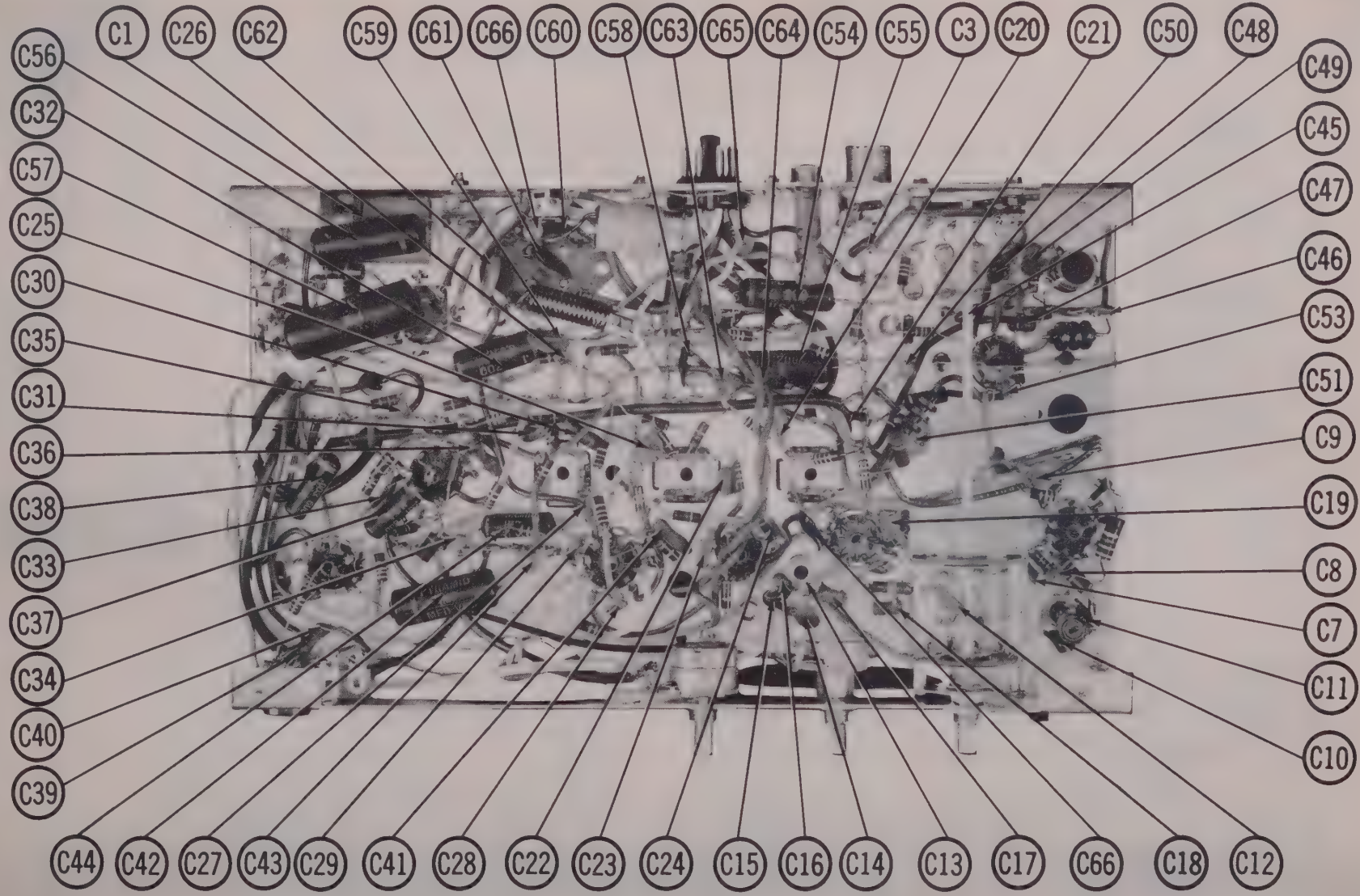
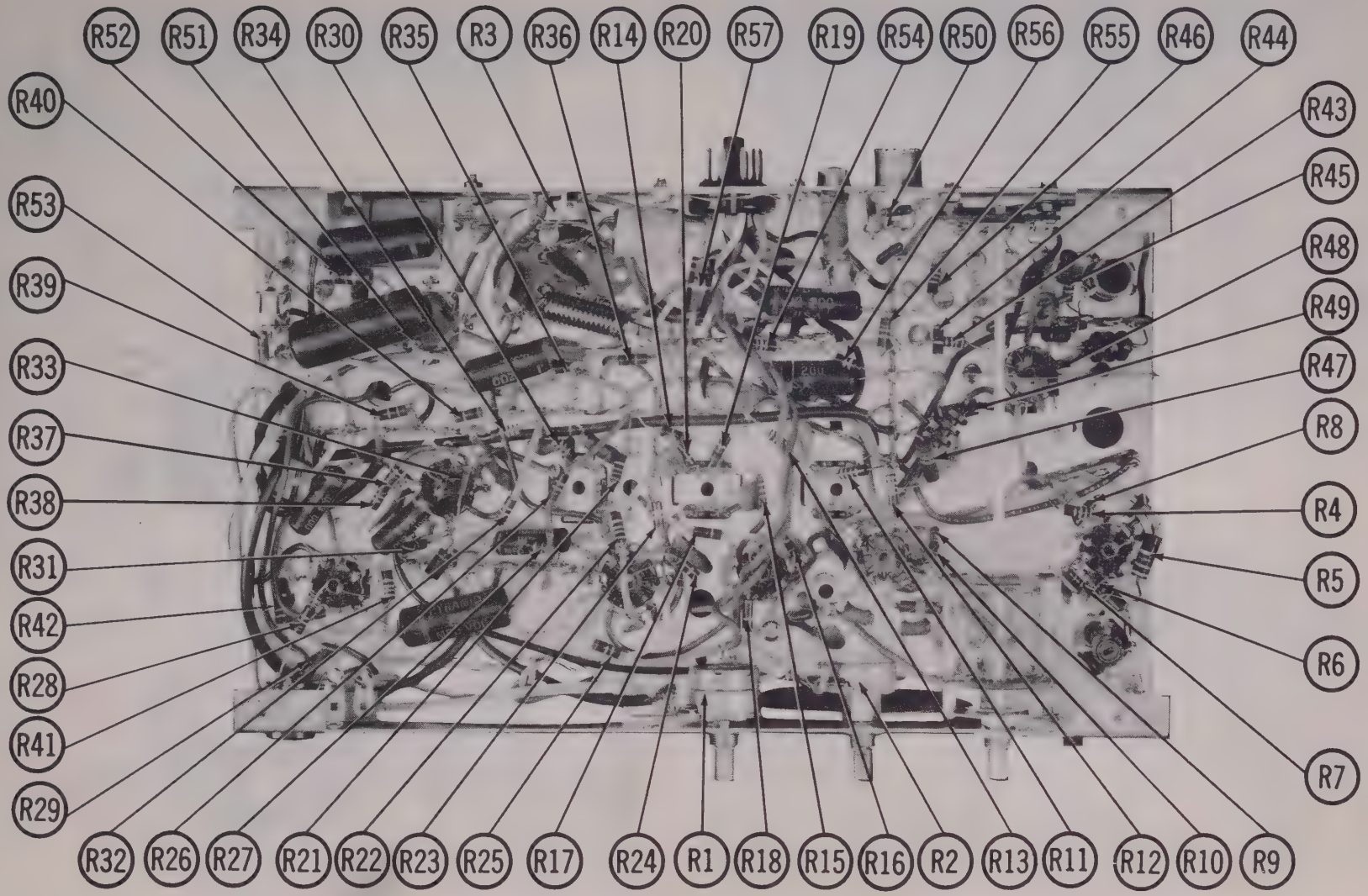


LAFAYETTE MODELS HE-20AWX
(Series 3, 4, 5), HE-20WX (Series 3)



CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW-RESISTOR IDENT.

ALIGNMENT INSTRUCTIONS

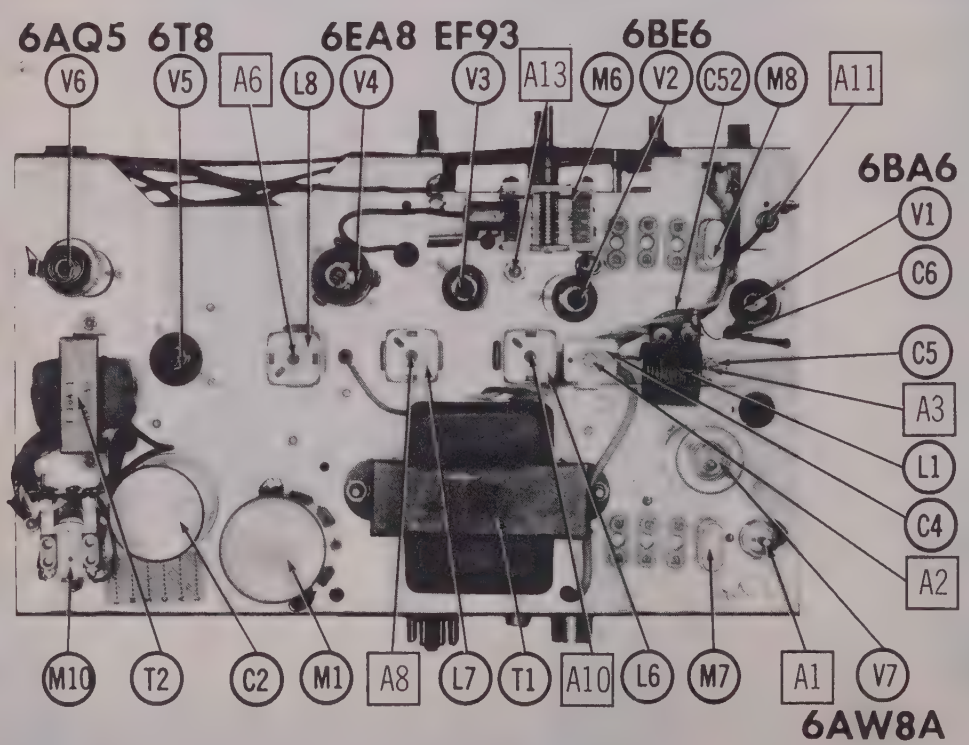
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	1650KC (400~ 30% AM)	9 (Fixed)	Across voice coil.	A5, A6, A7, A8, A9, A10	Turn Volume and Squelch controls fully clockwise. Adjust for maximum output.
2.	Across antenna receptacle.	27.065MC	"	"	A11	Connect a 100Ω resistor in series with a .005mfd capacitor across the secondary of L3. Adjust A11 for maximum output.
3.	"	27.065MC	9	"	A12	Move the capacitor and resistor to the primary and adjust A12 for maximum output.
4.	"	26.965MC	1 (Tuneable)	"	A13	With Volume and Squelch controls fully clockwise, adjust A13 for maximum output. Two peaks will be found. Use the higher of the two.
5.	"	27.255MC	23 (Tuneable)	"	A14	Adjust for maximum output. Repeat Steps 4 and 5 until proper calibration is obtained.

TRANSMITTER ALIGNMENT

1.	Insert a dummy antenna (47 lamp or 52Ω 5W non-inductive load) into antenna receptacle. If load is used, parallel with RF voltmeter.
2.	Set selector to the Fixed Channel position having Channel 9 crystal.
3.	Hold transmit button and make the following adjustments: a. A1 for maximum lamp brilliance or maximum voltage. b. Turn A2 fully tight, then back off 1/2 turn. c. A3 for maximum lamp brilliance, maximum voltage, or minimum dip on front panel Ip meter. d. A2 for maximum lamp brilliance, maximum voltage, or minimum dip on front panel Ip meter.
4.	Press and release transmit button several times. The output indicator should show that the transmitter is operating each time. If not, back out A1 1/4 turn at a time until transmitter operates each time the button is pressed.
5.	A4 is adjusted for minimum interference to TV receivers on the 3 lower TV channels of the area.



CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	RF Amplifier	EF93/6BA6
V2	Converter	6BE6
V3	1st IF Amplifier	EF93/6BA6
V4	2nd IF Amp. -Speech Amp.	6EA8 (6U8A)*
V5	Det. -ANL-Squelch Clamper-AF Amplifier	6T8
V6	Rec. Output-Modulator	6AQ5
V7	Trans. Osc. -Final Amp.	6AW8A

* Alternate

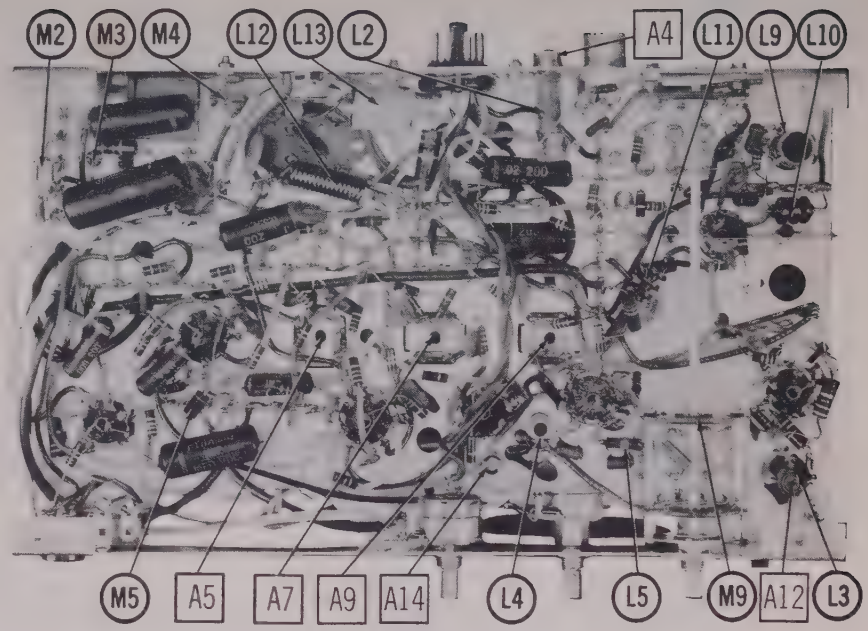
ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	LAFAYETTE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	40	200		PRS1580	BR4025	QT1-14	TC58	TD-40-250	TVA-1511
C2A	▲40	200		AFH3-43	C0340	XC4-22	FP420, 36	TMT-3700	TVL-3785
B	■40	350		PRS1580	BR4035			TD-40-350	TVA-1611
C	▲40	350							
D	10	50							

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	24 5%		1469-000024	TCZ-24	22R5Q24	CM-19B-240J	CNO-425	MS-424
C4	40-380							
C5	1-10			829-10				
C6	10 N750 5%		N750-SI 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C7	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C10	10 N750 5%		N750-SI 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C11	10 N750 5%		N750-SI 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C12	10		1469-00001	TCZ-10	22R5Q1	CM-19B-100M	MCB215	MS-41
C13								
C14	22 NPO 5%			DTZ-22	C10Q22C		CNO-422	10TCC-Q22
C15	50 5%		1469-00005	TCZ-50	22R5Q5	CM-19B-500J	MCE225	MS-45
C16	10 N750 5%		N750-SI 10	TCN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C17	22 N750		N750-SI 22	TCN-22	C10Q22U	CCTN-22	CN7-422	10TCU-Q22
C18	22 N750		N750-SI 22	TCN-22	C10Q22U	CCTN-22	CN7-422	10TCU-Q22
C19	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C20	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C27	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C29	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C31	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C32	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C33	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C36	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C37	.001 600V 10%		V84C6D1-10%		PM6D1	6DP-1-102	GEM-1621	6TM-D10
C38	.003 600V		P688N-003	D6-302	CUB6D3	6DP-1-302	GEM-623	6TM-D30
C39	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C40	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C41	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C42	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C43	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C44	.002 600V		P688N-002	D6-202	CUB6D2	6DP-1-202	GEM-622	6TM-D20
C45	190 10%		1469-0002	TCZ-200	22R5T2	CM-19B-201K	MCB237	MS-32
C46	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C47	5 N750 5%		N750-SI 5	TCN-5	C10V5U	CCTN-050	CN7-550	10TCU-V50
C48	470 10%		1469-00047		5R5T47	CM-19B-471K	MCJ244	MS-347
C49	5 N750 5%		N750-SI 5	TCN-5	C10V5U	CCTN-050	CN7-550	10TCU-V50
C50	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C51	.001 2000V 10%							

CHASSIS—BOTTOM VIEW



FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C52	.001 2000V 10%							
C53	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C54	.02 200V		P288N-02	DD-203	CUB2S2	4DP-2-203	GEM-412	2TM-S20
C55	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C56	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C57	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C58	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C59	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C60	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C61	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C62	.1 50V			DDA-104	H-05P1	IDP-2-104	TA-010	TG-P10
C63	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C64	.001		BPD-001	DD-102	BPA10D1	CCD-102	B-210	5HK-D10
C65	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C66	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C67	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA LAFAYETTE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	V-332A-2	B-76	A47-1meg-Z	Q13-139	U55	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS (cont)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA LAFAYETTE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R2A	3meg	½	V-331A-2	B-84			U57	Squelch
B	Bushing			AK-31			EB247	
R3A	300Ω	2(WW)		WN-101	A43-300	W11-100		Meter Adjust
B	Shaft			Not Req.	FKS-1/4	SK5		

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No	WORKMAN TV PART No	REMARKS
R4	470K			
R5	4700Ω 1W			
R6	27K 1W			
R7	27K			
R8	68Ω			
R9	47K			
R10	47K			
R11	47K			
R12	39K			
R13	47K			
R14	2200Ω			
R15	27K			
R16	68Ω			
R17	150Ω			(120Ω) *
R18	1.5meg			
R19	10meg			
R20	1meg			
R21	2200Ω			
R22	47K			
R23	100K			
R24	2.2meg			
R25	10K			
R26	56K			
R27	56K			
R28	220K			
R29	10K			
R30	47K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No	WORKMAN TV PART No	REMARKS
R31	220K			
R32	220K			
R33	1meg			
R34	470K			
R35	2.2meg			
R36	10meg			
R37	8.2meg			
R38	470K			
R39	1.8meg			
R40	1.5meg			
R41	470K			
R42	330Ω 1W			
R43	47K			
R44	56K			
R45	47K			
R46	27K			
R47	1.2Ω			
R48	56Ω			
R49	4700Ω 1W			
R50	1000Ω			
R51	1000Ω 2W			
R52	100Ω 1W			
R53	10Ω			
R54	470K			
R55	1meg			
R56	560K			
R57	22Ω 2W			

* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA LAFAYETTE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Ant.						
L2	TV Trap						
L3	RF						
L4	Osc.						
L5	RF Choke (7.2uh)		BC-565	4611	RTC-8521	T821	
L6	1st IF						
L7	2nd IF						
L8	3rd IF						
L9	Osc. Plate						
L10	RF Choke(500uh)		TV-188	6174	RTC-8592	T324	
L11	RF Choke(500uh)		TV-188	6174	RTC-8592	T324	
L12	RF Choke(.56uh)						
L13	Hash Choke (30uh)						

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA LAFAYETTE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V@ .5A or 12.6VCT @2.5A	105V@ .3A AC	12.6V@ 1.8A (AC Only)	PTV-183-2					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA LAFAYETTE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No	NOTES
T2	10.7K Tap@ 4600Ω	3-4Ω	T-184-1					

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA LAFAYETTE PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	S717-1	4A07	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA LAFAYETTE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	NOTES
M1	Interrupter	12.3V	115~		6301	G-1601	6301	

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA LAFAYETTE PART No.	RCA PART No.	SARKES TARZIAN PART No.	NOTES
M2	.080A		1N1763	40H	
M3	.080A		1N1763	40H	
M4	.0001			Model 12	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA LAFAYETTE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	NOTES
M5	1N34A			1N34A	Noise Limiter

MISCELLANEOUS

ITEM No.	PART NAME	LAFAYETTE PART No.	NOTES
M6	Variable Cap.		1 Gang, Receiver Tuning
M7	Crystal		Receive (Order Channel Desired)
M8	Crystal		Transmit (Order Channel Desired)
M9	Switch		Channel Selector (Rotary Wafer Type)
M10	Relay		
M11	Meter		

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Shielded Hook-up Wire .....Use BELDEN No. 8885

Bonding Strap .....Use BELDEN No. 8661

LAFAYETTE MODEL HE-29

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

LAFAYETTE MODEL HE-29

TRADE NAME	Lafayette Model HE-29		
SUPPLIER	Lafayette Radio, 165-08 Liberty Ave., Jamaica 33, N. Y.		
TYPE SET	Battery Operated Transistorized Portable Citizens Band Transmitter-Receiver		
POWER SUPPLY	12 Volts DC	RATING	10MA @ 12 Volts DC (Receive, No Signal)
TUNING RANGE	Citizens Band Channel 10		15MA @ 12 Volts DC (Transmit, No Signal)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3.... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, thru A8.. GENERAL CEMENT #9440

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455KC (400% Mod.)		Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	"	Transmitter Crystal Freq.		"	A4, A5	Adjust A4 for proper oscillation. Adjust A5 for maximum output.

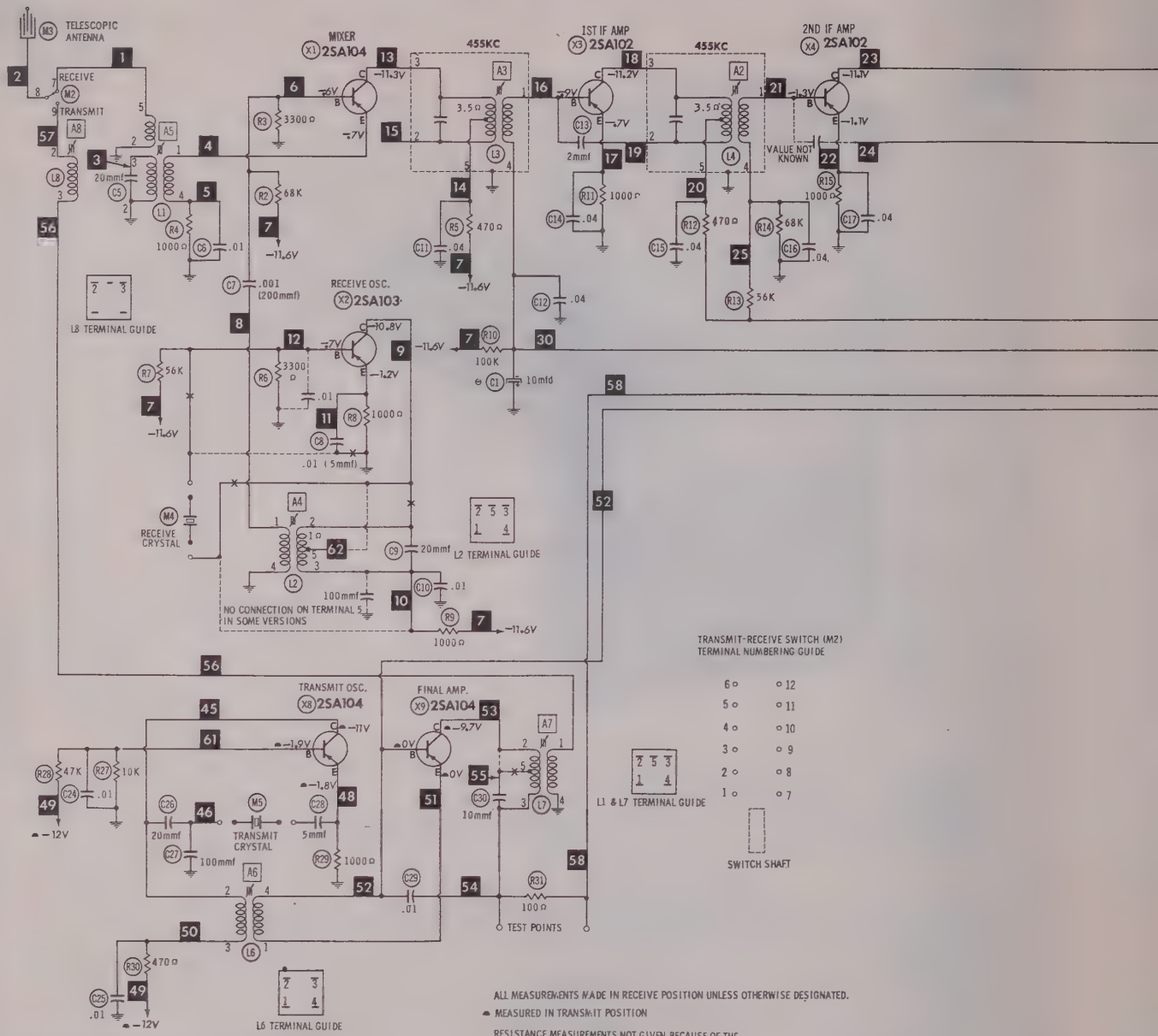
TRANSMITTER ALIGNMENT

3. Adjust A6 for Transmitter Crystal Freq. as checked with a frequency meter.
4. Adjust A7 and A8 for maximum transmitted output as measured with a field strength meter or similar device. Recheck frequency.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of LZ052

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

ALL MEASUREMENTS MADE IN RECEIVE POSITION UNLESS OTHERWISE DESIGNATED.

⏏ MEASURED IN TRANSMIT POSITION

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUIT-FACT

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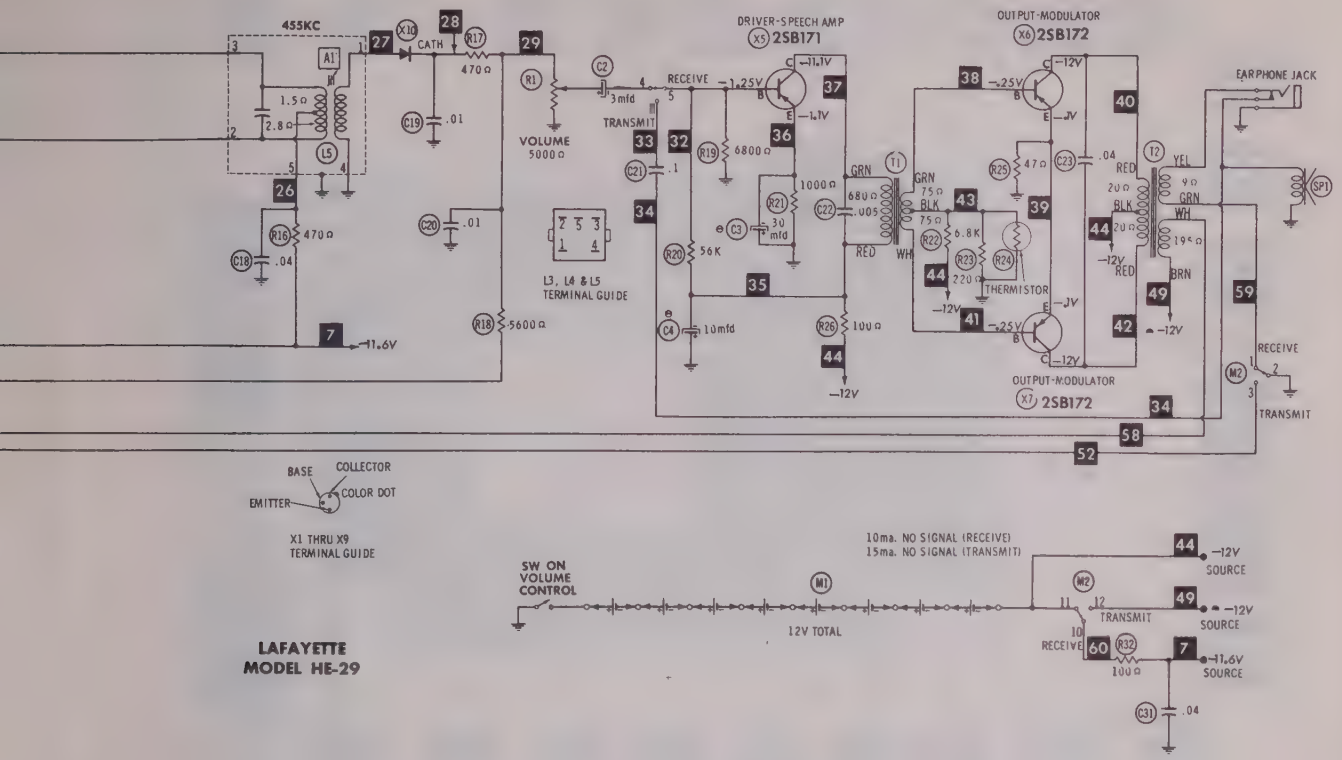
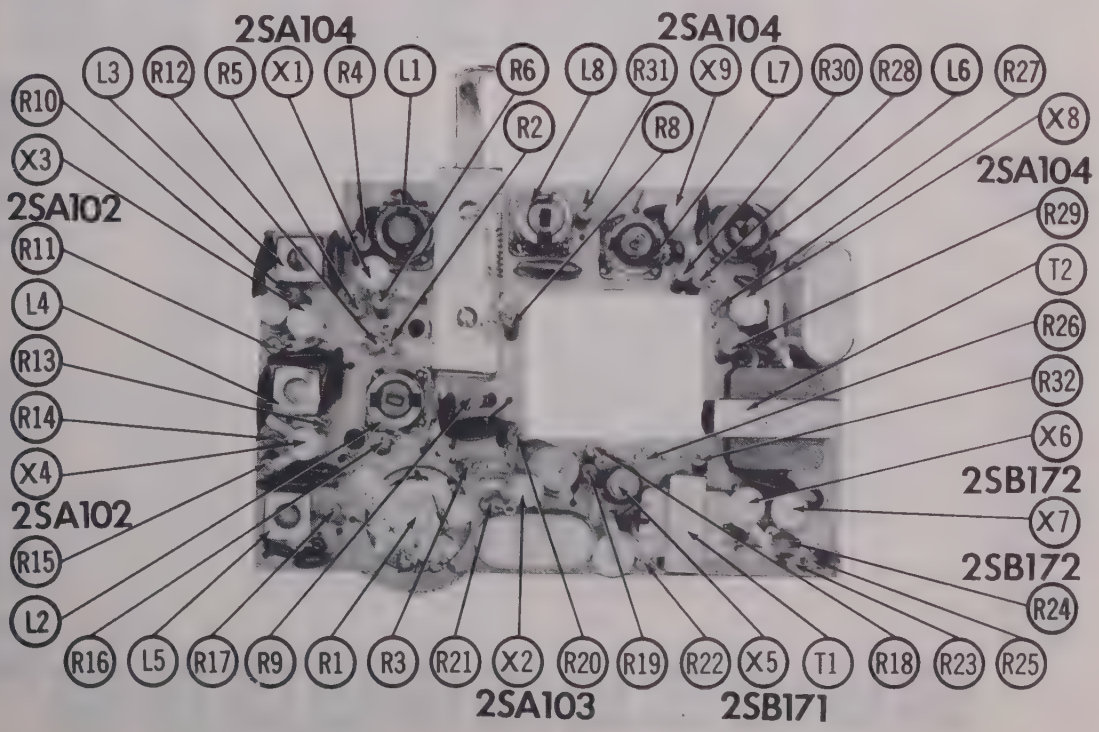
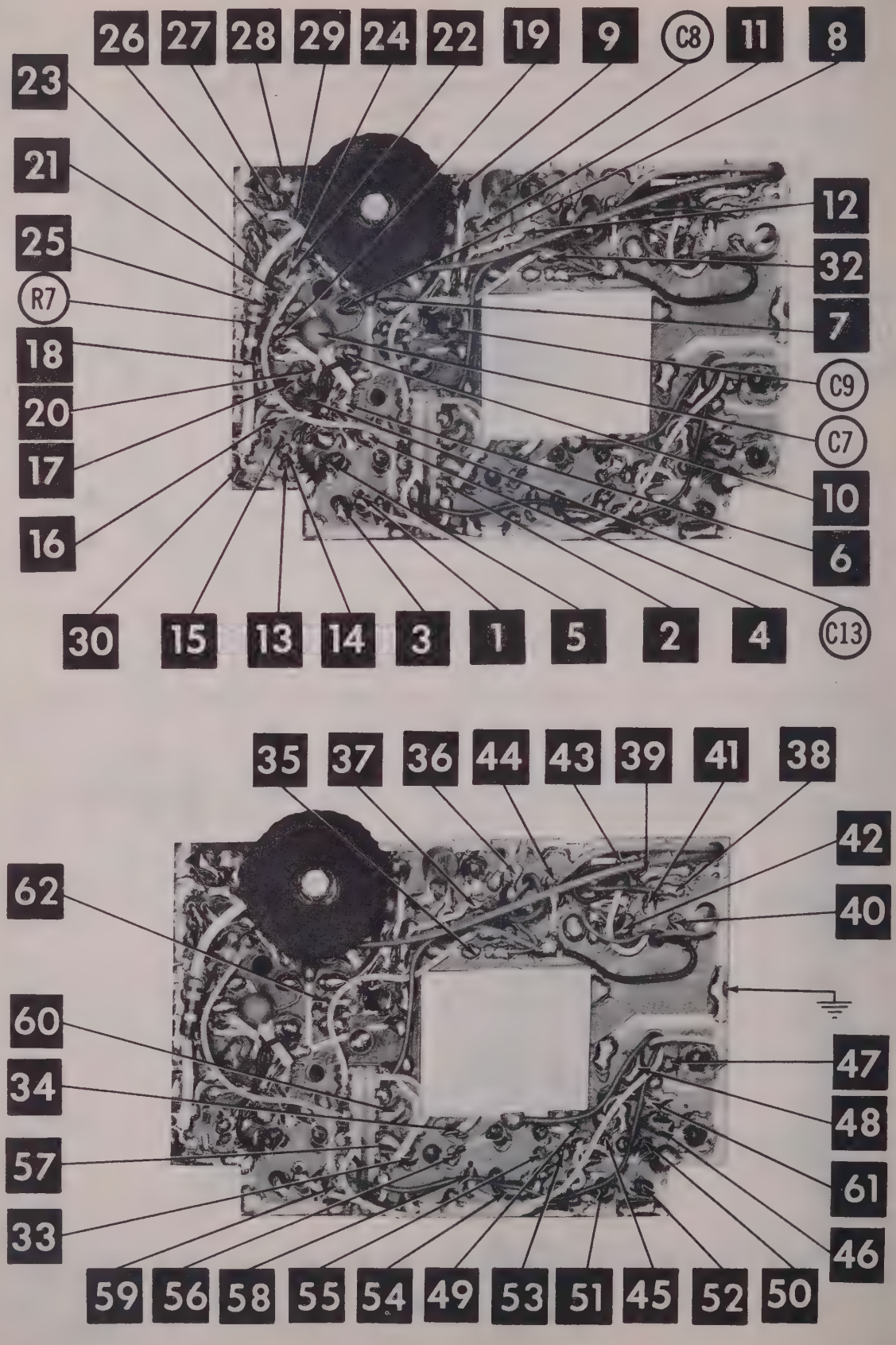


X1 THRU X9
TERMINAL GUIDE

LAFAYETTE
MODEL HE-29



CHASSIS TOP VIEW-RESISTOR, INDUCTOR & TRANSISTOR IDENT.



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PRINTED BOARD

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	2SA104	Mixer	2N1179		PNP
X2	2SA103	Receive Osc.	2N1178		PNP
X3	2SA102	1st IF Amplifier	2N1525		PNP
X4	2SA102	2nd IF Amplifier	2N1525		PNP
X5	2SB171	Driver-Speech Amp.	2N406		PNP
X6	2SB172	Output-Modulator	2N408		PNP
X7	2SB172	Output-Modulator	2N408		PNP
X8	2SA104	Trans. Osc.	2N1178		PNP
X9	2SA104	Final Amplifier	2N1177		PNP

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES		NOTES
			RCA PART No.	SARKES TARZIAN PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
X10		29-505				1N295	Detector

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	LAFAYETTE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	10	3	①	PTT6	NLW10-6	MT1-5	TT3X10	MLV10-3	TE-1053
C2	3	3	29-523	PTT3	NLW3-25	MT1-3	TT6X3	MLV5-3	TE-1052
C3	30	3	②	PTT10	NLW30-6	MT1-13	TT6X30	MLV30-6	TE-1092
C4	10	15	③	PTT66	NLW10-15	MT1-5	TT15X10	MLV10-15	TE-1155

① Some versions may use 10mfd@10V in this application (Part #29-525).
② Some versions may use 30mfd@10V in this application (Part #29-526).
③ Some versions may use 30mfd@12V in this application (Part #29-527).

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	20		NPO-DI 20	DTZ-20	C10Q20C	CCTO-200	CNO-422	10TCC-Q20
C6	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C7	.001	(200) †	C80V102AM	DM-102	H-05D1	CCD-102	TA-210	TG-D10
C8	.01	(5) †	C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C9	20		NPO-DI 20	DTZ-20	C10Q2C	CCTO-200	CNO-422	10TCC-Q20
C10	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C11	.04	#29-522						
C12	.04	#29-522						
C13	2		NPO-DI 2.0	DTZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C14	.04	#29-522						
C15	.04	#29-522						
C16	.04	#29-522						
C17	.04	#29-522						
C18	.04	#29-522						
C19	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C20	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C21	.1		C80V104AM	DA-104	H-05P1		TA-010	TG-P10
C22	.005	(.01) †	C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C23	.04	#29-522						
C24	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C25	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C26	20		NPO-DI 20	DTZ-20	C10Q2C	CCTO-200	CNO-422	10TCC-Q20
C27	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C28	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-550	10TCC-V50
C29	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C30	10		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C31	.04	#29-522						

Lafayette Part Number.
† Alternate Value.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			LAFAYETTE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	5000Ω	29-512				

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R2	68K				R14	68K			
R3	3300Ω				R15	1000Ω			
R4	1000Ω				R16	470Ω			
R5	470Ω				R17	470Ω			
R6	3300Ω				R18	5600Ω			
R7	56K				R19	6800Ω			
R8	1000Ω				R20	56K			
R9	1000Ω				R21	1000Ω			
R10	100K				R22	6800Ω			
R11	1000Ω				R23	220Ω			
R12	470Ω				R24	Thermistor			(MT-25)
R13	56K				R25	47Ω			

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R26	100Ω				R30	470Ω			
R27	10K				R31	100Ω			
R28	47K				R32	100Ω			
R29	1000Ω								

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		LAFAYETTE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant.	29-537					
L2	Osc.	29-533					
L3	1st IF	29-532					
L4	2nd IF	29-532					
L5	3rd IF	29-532					
L6	Osc.	29-538					
L7	Output	29-536					
L8	Ant. Load						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	LAFAYETTE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.5	1	29-534					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	LAFAYETTE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	800Ω CT	6-8Ω	29-535					
		SEC. 2						
		250Ω						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	LAFAYETTE PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω	29-539	22A06Z8	

BATTERIES

ITEM No.	VOLTAGE	LAFAYETTE PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1½V	BA-155		930		1015		M-15R	8 Required

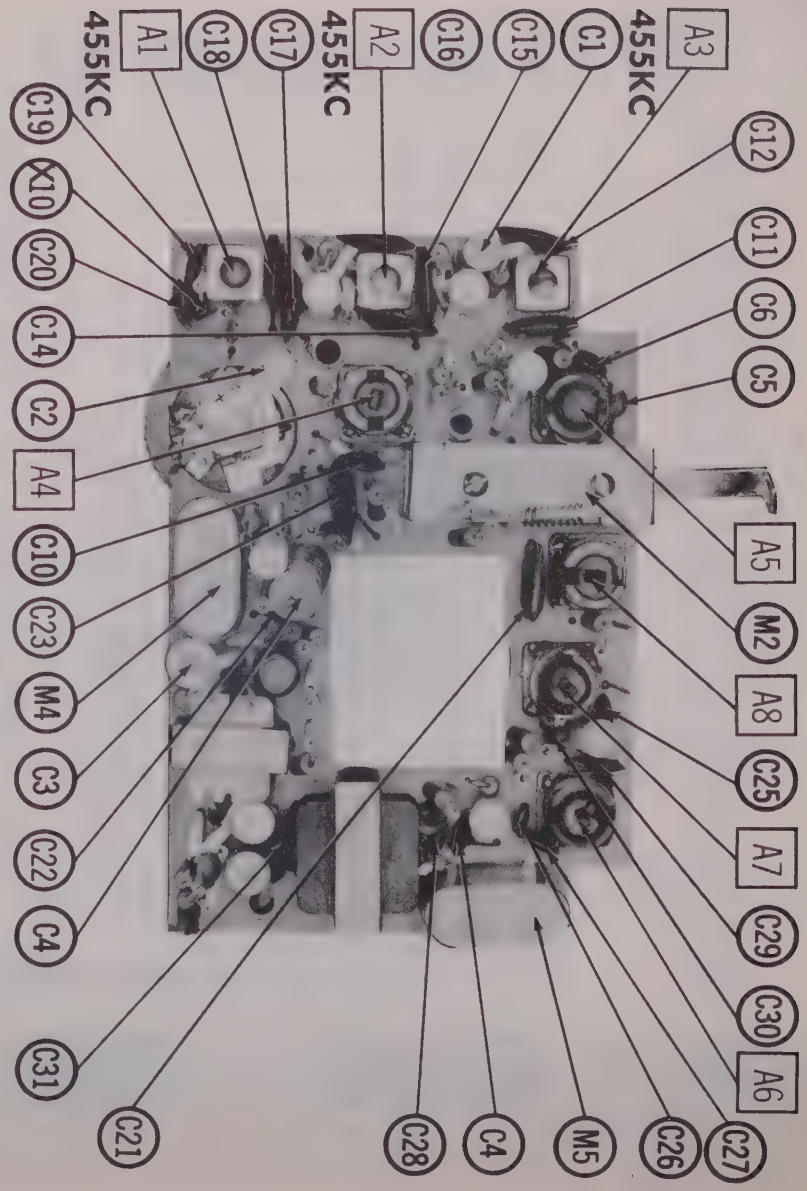
MISCELLANEOUS

ITEM No.	PART NAME	LAFAYETTE PART No.	NOTES
M2	Switch	29-540	Push-to-talk (Spring Loaded, Slide Type)
M3	Antenna	29-543	
M4	Crystal		Receive
M5	Crystal		Transmit

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid 22AWG)	Available in 12 Colors
	8524 (Stranded 22AWG)	
	8570 (Stranded 26AWG)	

CHASSIS—TOP VIEW



MORROW MODEL
VP-100-4A

TRADE NAME	Morrow Model VP-100-4A		
MANUFACTURER	Morrow Radio Mfg. Co., 2794 Market Street, N. E., Salem, Oregon		
TYPE SET	Battery Operated Transistorized Portable Citizens Band Transmitter-Receiver		
POWER SUPPLY	9 Volts DC	RATING	10 MA @ 9 Volts DC (Receive) 40 MA @ 9 Volts DC (Transmit)
TUNING RANGE	Any one of Citizens Band Channels 1 thru 22		

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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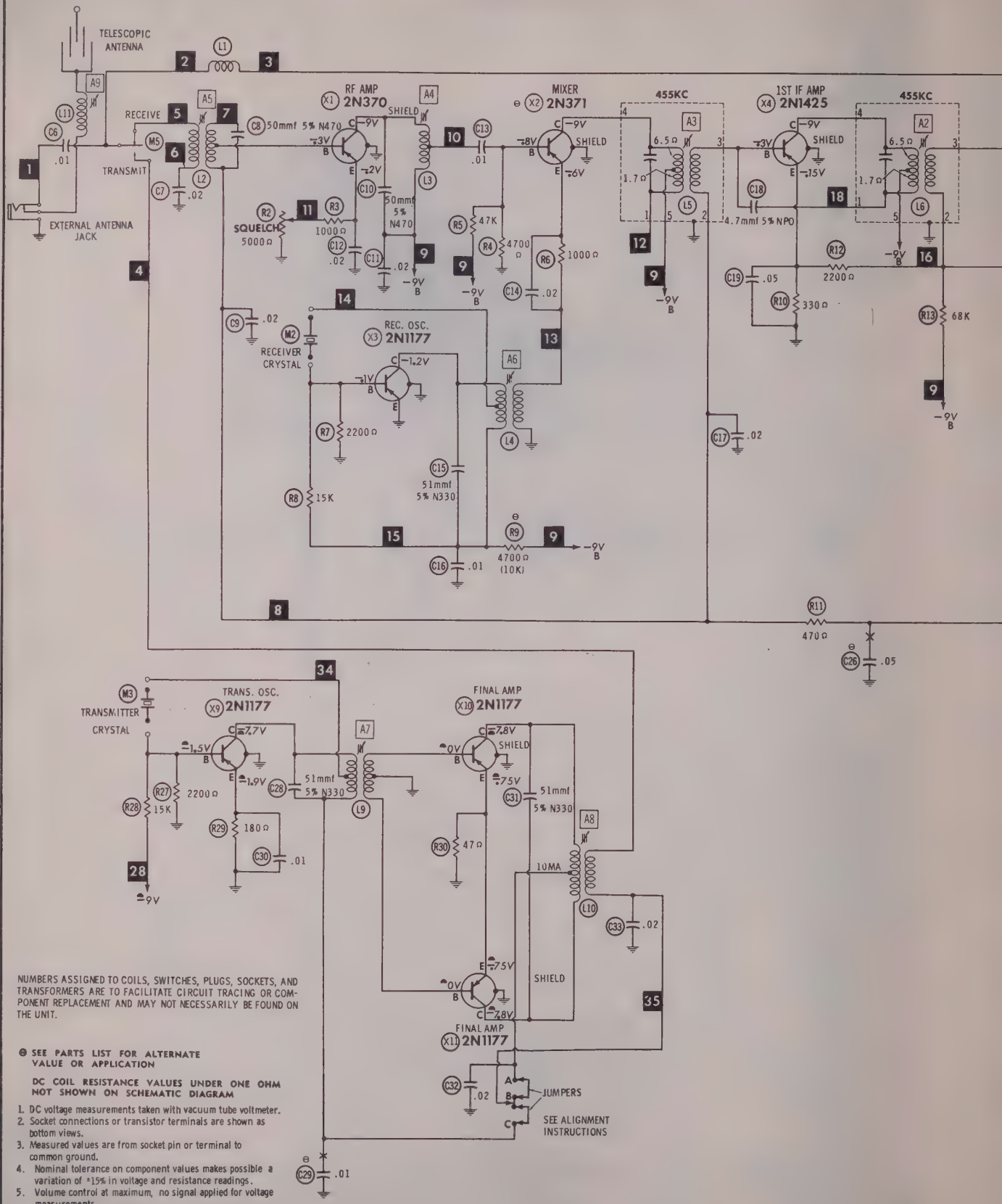

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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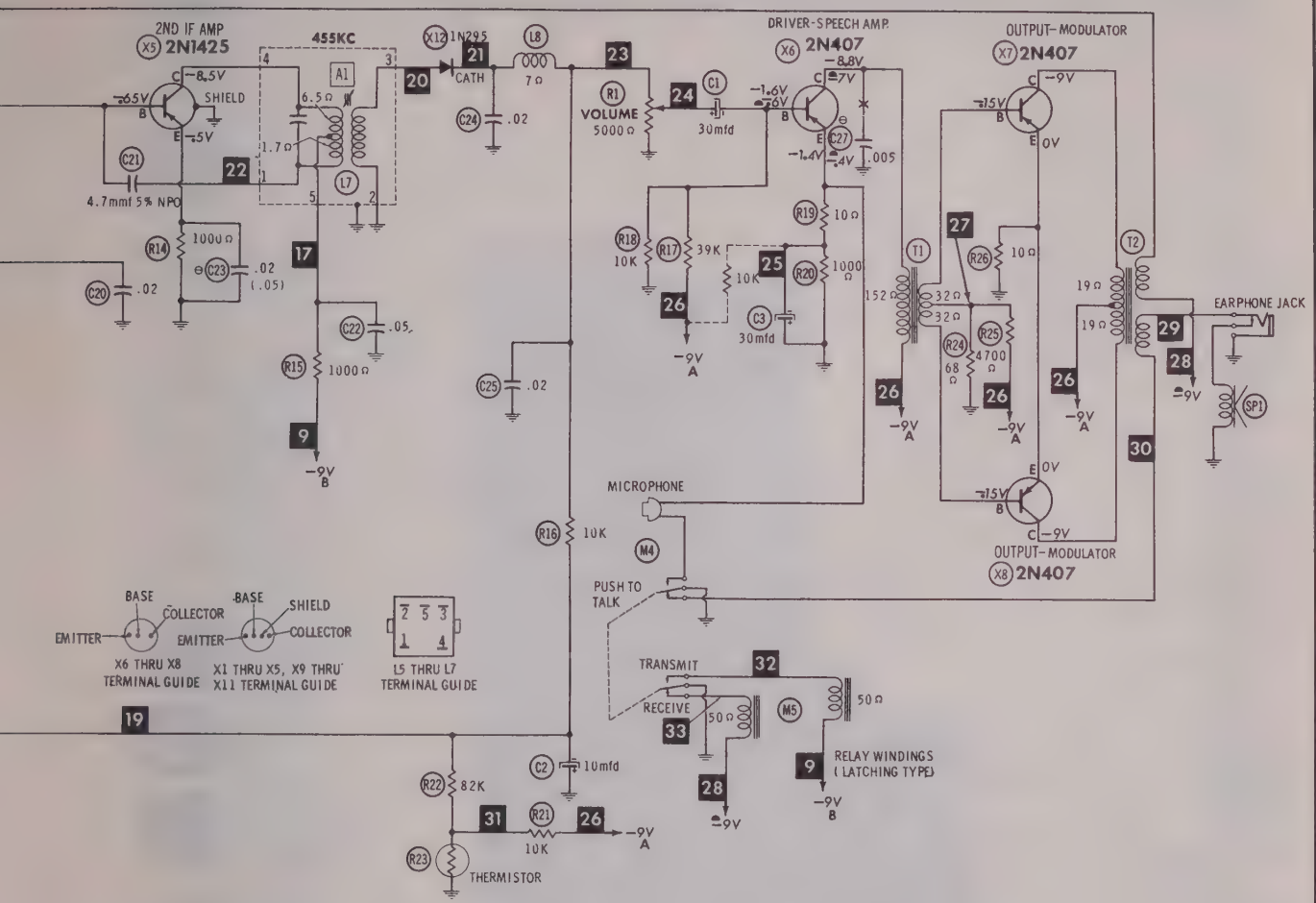
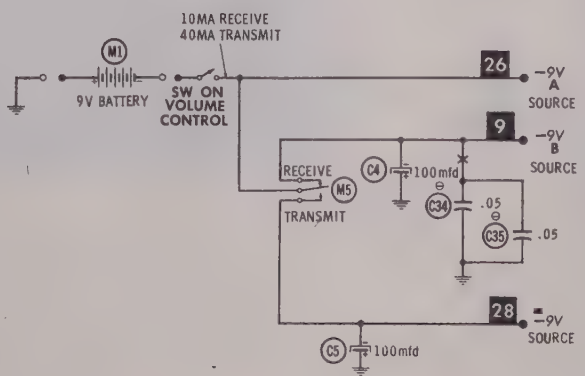


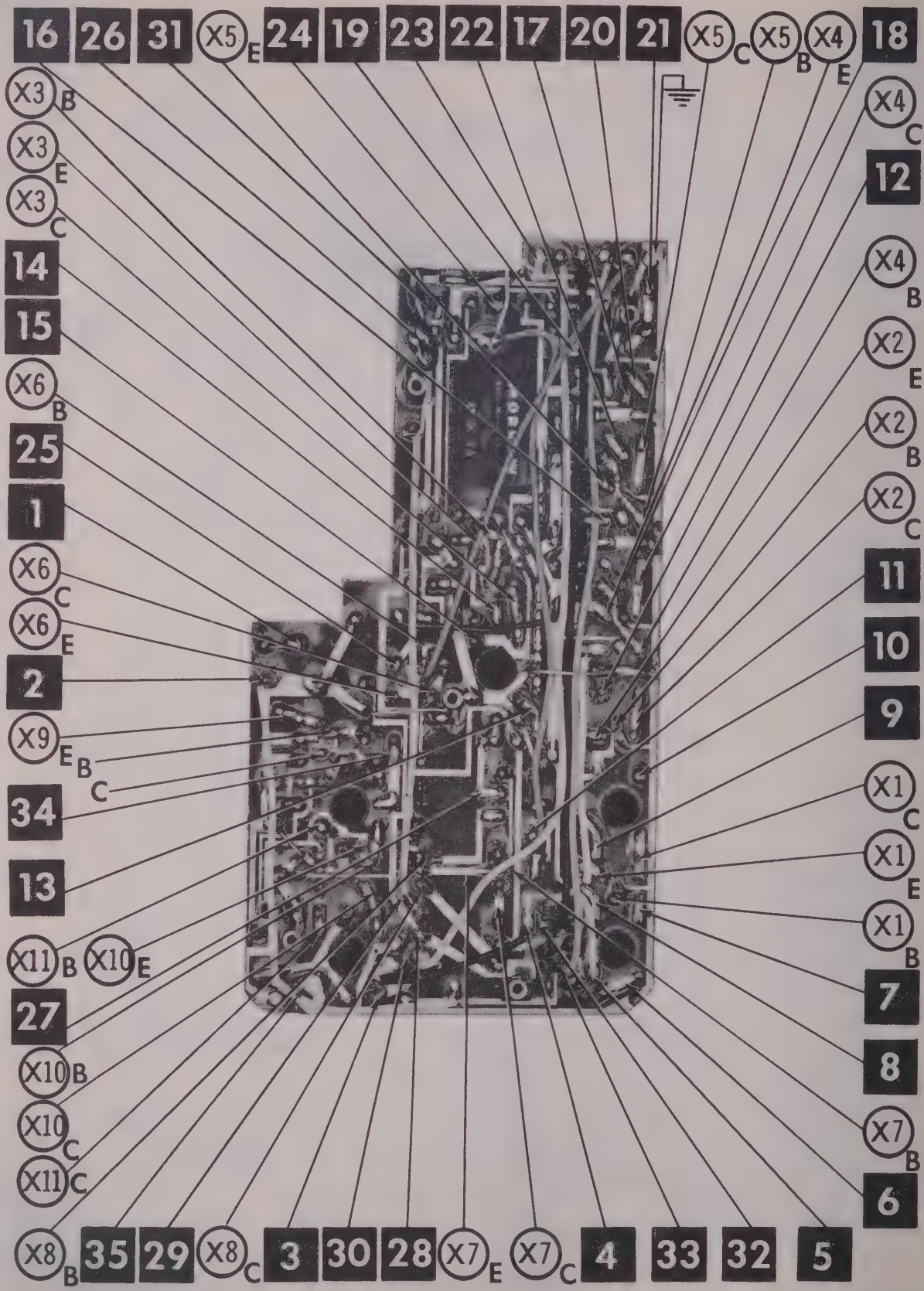
RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N370	10K	4600Ω	†.1Ω
X2	2N371	4000Ω	1000Ω	†6.5Ω
X3	2N1177	2000Ω	0Ω	†3000Ω
X4	2N1425	10K	330Ω	†6.5Ω
X5	2N1425	2500Ω	1000Ω	†1000Ω
X6	2N407	7800Ω	1000Ω	†152Ω
X7	2N407	100Ω	10Ω	†19Ω
X8	2N407	100Ω	10Ω	†19Ω
X9	2N1177	2000Ω	180Ω	▲†.7Ω
X10	2N1177	.1Ω	47Ω	▲†.7Ω
X11	2N1177	.1Ω	47Ω	▲†.7Ω

TRANSISTORS REMOVED FOR RESISTANCE MEASUREMENTS.
ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "TRANSMIT" POSITION.
† MEASURED FROM MINUS 9 VOLT LINE.



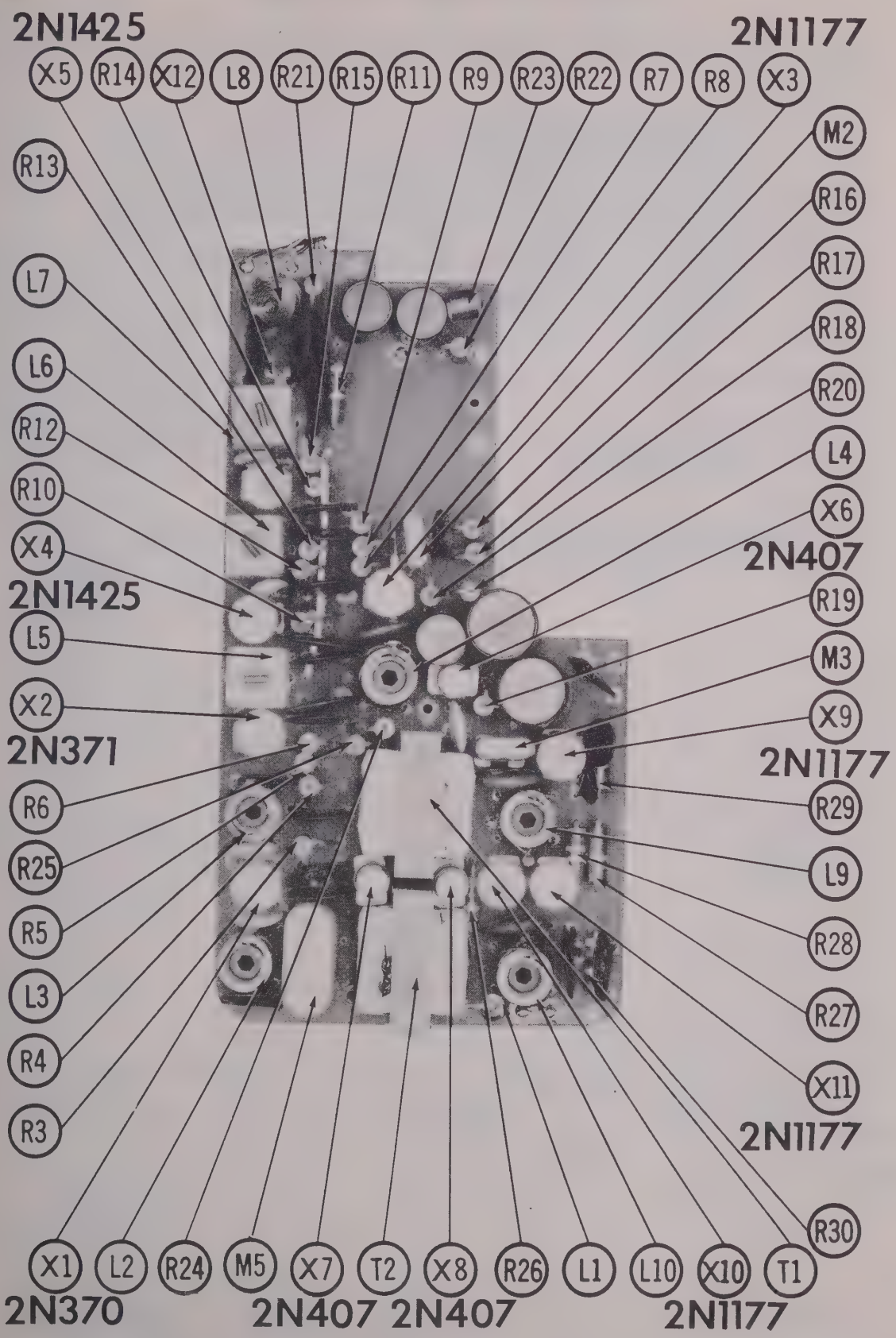
MORROW MODEL VP-100-4A



A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

E-EMITTER B-BASE
C-COLLECTOR



CHASSIS TOP VIEW – RESISTOR, INDUCTOR & TRANSISTOR IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

A1, A2, A3.....GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537

A4, Thru A8.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Place lead from high side of generator near receiver RF coil.	455KC (400% Mod.)		Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	High side to antenna tube. Low side to B-.	Frequency of channel to be used.		"	A4, A5	"
3.	Turn A6 in until Oscillator stops, then back slug out until Oscillator starts. Turn an additional 1/4 turn.					

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
4.	Unsolder jumper from terminals A, B and C. (See Fig. 1). Construct a 47Ω dummy load as in Fig. 2.	Connect DC milliammeters as shown in Fig. 1. Connect an RF power output meter as shown in Fig. 2. (Diode may be any good RF type.)	A7	Depress Mike button and adjust A7 for maximum PA current. If the core is too far into the coil, the PA current will fall off to zero. Back the core out slightly past the point of maximum PA current. This will provide more reliable starting of the Oscillator. An Oscillator current reading of 6 ma is normal at this setting.
5.	"	"	A8	Adjust for maximum reading on the output meter. The PA current will dip at this point to about 11 ma. Recheck Oscillator (A7) for tuning. Modulate the transmitter while observing the PA current and RF power output. If meter readings drop to zero, back out A7 slightly and modulate again. Attempt to get as much output as possible, but maintain stable Oscillator operation.
6.	Remove the 47 ohm load and RF Power Meter. Construct a Field Strength Meter as in Fig. 3. Screw antenna in place.	Field Strength Meter as in Fig. 3.	A9	Adjust for maximum radiated power as indicated on field strength meter. (A9 is located inside antenna.) Remove all meters. Resolder jumper on terminals A, B and C.

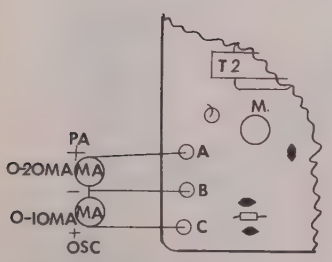


FIG 1

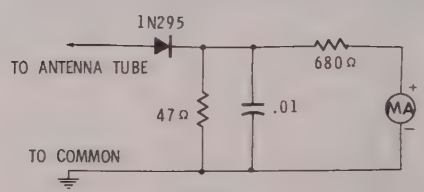


FIG 2

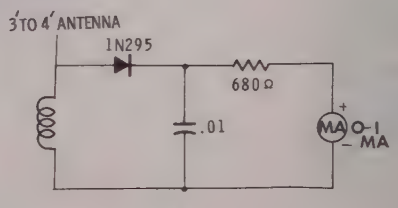


FIG 3

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	2N370	RF Amplifier	2N370		PNP
X2	2N371	Mixer	2N371		PNP
	2N372*	Mixer			PNP
X3	2N1177	Rec. Oscillator			PNP
X4	2N1425	1st IF Amplifier			PNP
X5	2N1425	2nd IF Amplifier			PNP
X6	2N407	Driver-Speech Amp.	2N217	2N631	PNP
X7	2N407	Output-Modulator	2N217	2N631	PNP
X8	2N407	Output-Modulator	2N217	2N631	PNP
X9	2N1177	Trans. Osc.			PNP
X10	2N1177	Final Amp.			PNP
X11	2N1177	Final Amp.			PNP

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES		NOTES
			RCA PART No.	SARKES TARZIAN PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
X12		1N295				1N295	Detector

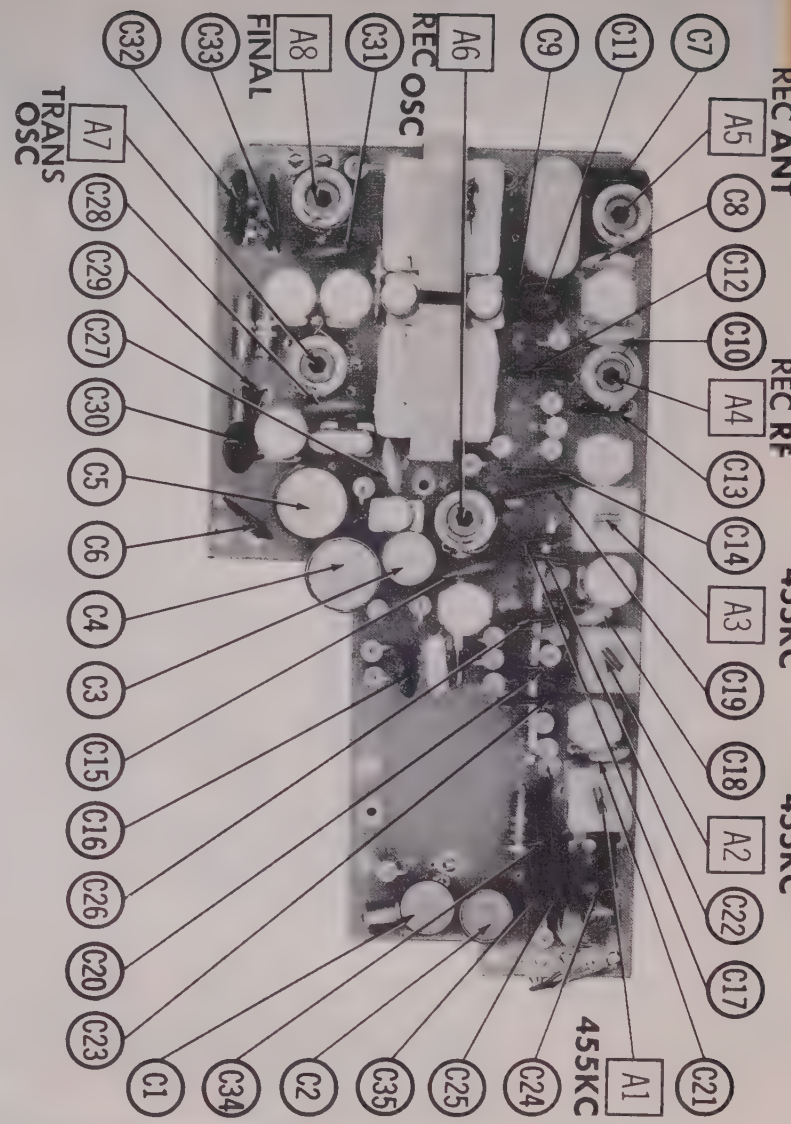
ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MORROW PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	30	15		BCD15025	ECPB412	MT1-14	TT15X30	MLV35-15	VL-1170
C2	10	15		BCD15010	ECPB408	MT1-5	TT15X10	MLV10-15	VL-1167
C3	30	15		BCD15025	ECPB412	MT1-14	TT15X30	MLV35-15	VL-1170
C4	100	15		BCD15100	ECBP417	MT1-19	TT15X100	MLV100-15	VL-1180
C5	100	15		BCD15100	ECPB417	MT1-19	TT15X100	MLV100-15	VL-1180

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C7	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C8	50 N470 5%					*		
C9	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C10	50 N470 5%					*		
C11	.02	(.05) †	C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C12	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C13	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C14	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C15	51 N330 5%					*		
C16	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C17	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C18	4.7 NPO 5%		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C19	.05		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C20	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C21	4.7 NPO 5%		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C22	.05		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C23	.02	(.05) †	C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C24	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C25	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C26	.05	Note 1	C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C27	.005	Note 1	C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C28	51 N330 5%					*		
C29	.01	Note 1	C80V103AM	DM-103	H-05S1		TA-110	TG-S10

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C30	.01		C80V103AM	DM-103	H-05S1	*	TA-110	TG-S10
C31	51 N330 5%							
C32	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C33	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C34	.05	Note 1	C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C35	.05	Note 1	C80V503AM	DA-503	H-05S5		TA-150	TG-S50

† Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Not used in some versions.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			MORROW PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	5000Ω	311-008		44S-5K-W		MLC53A-S
R2	Squelch	5000Ω	311-009		44-5K-W		MLC53A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS
R3	1000Ω			
R4	4700Ω			
R5	47K			
R6	1000Ω			
R7	2200Ω			
R8	15K			
R9	4700Ω			(10K) *
R10	330Ω			
R11	470Ω			
R12	2200Ω			
R13	68K			
R14	1000Ω			
R15	1000Ω			
R16	10K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS
R17	39K			
R18	10K			
R19	10Ω			
R20	1000Ω			
R21	10K			
R22	82K			
R23	Thermistor			
R24	68Ω			
R25	4700Ω			
R26	10Ω			
R27	2200Ω			
R28	15K			
R29	180Ω			
R30	47Ω			

* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MORROW PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	
L1	RF Choke						
L2	Ant.						
L3	RF						
L4	Osc.						
L5	1st IF						
L6	2nd IF						
L7	3rd IF						
L8	RF Choke						
L9	Osc.						
L10	Final						
L11	Ant. Loading						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MORROW PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.8	1						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	MORROW PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	140Ω CT	6-8Ω						
		SEC. 2						
		140Ω						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MORROW PART No.	QUAM PART No.	
SP1	2½"	PM	6-8Ω			

BATTERIES

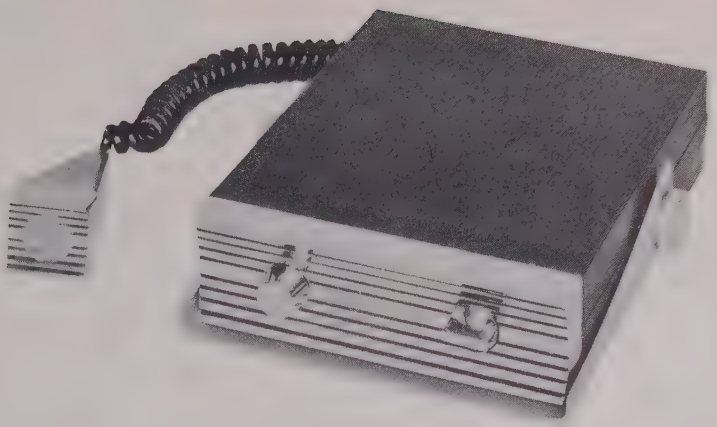
ITEM No.	VOLTAGE	MORROW PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			2U6		216		M-1604	

MISCELLANEOUS

ITEM No.	PART NAME	MORROW PART No.	NOTES
M2	Crystal		Receive
M3	Crystal		Transmit
M4	Mike Ass'y.		Includes Push-to-talk Switch
M5	Relay		(Iron Fireman Mfg. Co. #65GA200-5-C-50)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid 22AWG)	Available in 12 Colors
	8524 (Stranded 22AWG)	
	8570 (Stranded 26AWG)	



TRADE NAME	Osborne Model 300
MANUFACTURER	Osborne Electronics Corp., 13105 S. Crenshaw Blvd., Hawthorne, California
TYPE SET	AC Operated 9 Transistor, 4 Channel Citizens Band Transmitter-Receiver (Converters Available for 6-12-24-32 Volt DC Operation)
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 4 Watts, .05 Amp. @117 Volts AC
TUNING RANGE	Any 4 of Citizens Band Channels 1 thru 23

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Best results will be obtained when A5 and A7 are adjusted with unit connected to the antenna normally used and as nearly in the cabinet as possible.

Suggested Alignment Tools:

A1 thru A6..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

A7..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

RECEIVER ALIGNMENT

Connect DC VTVM between Point A and ground.

	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1.	Tune to 455KC (Unmod.). Connect high side to antenna input, common to ground.	Not Used	A1, A2, A3	Remove Receive Crystal. Adjust A1, A2, and A3 for maximum deflection. Reinsert Crystal.
2.	Tune to channel frequency. Connect high side to antenna input, common to ground.	Highest Channel Used	A4	Adjust for maximum deflection while rocking A4. Note rate of drop-off on each side of peak and set to point just below peak on side of gradual drop-off.
3.	"	Center Channel Used	A5	Adjust for maximum deflection.

TRANSMITTER ALIGNMENT

Output frequency should be checked by an accurately calibrated secondary frequency standard to be sure frequency is within .005%.

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
4.	Connect dummy load, RF watt meter or antenna to antenna input.	DC probe of VTVM to Point B.	A6	Adjust for maximum deflection while rocking. Note rate of drop-off on each side of peak and set to Point just below peak on side of gradual drop-off.
5.	"	Not Used.	A7	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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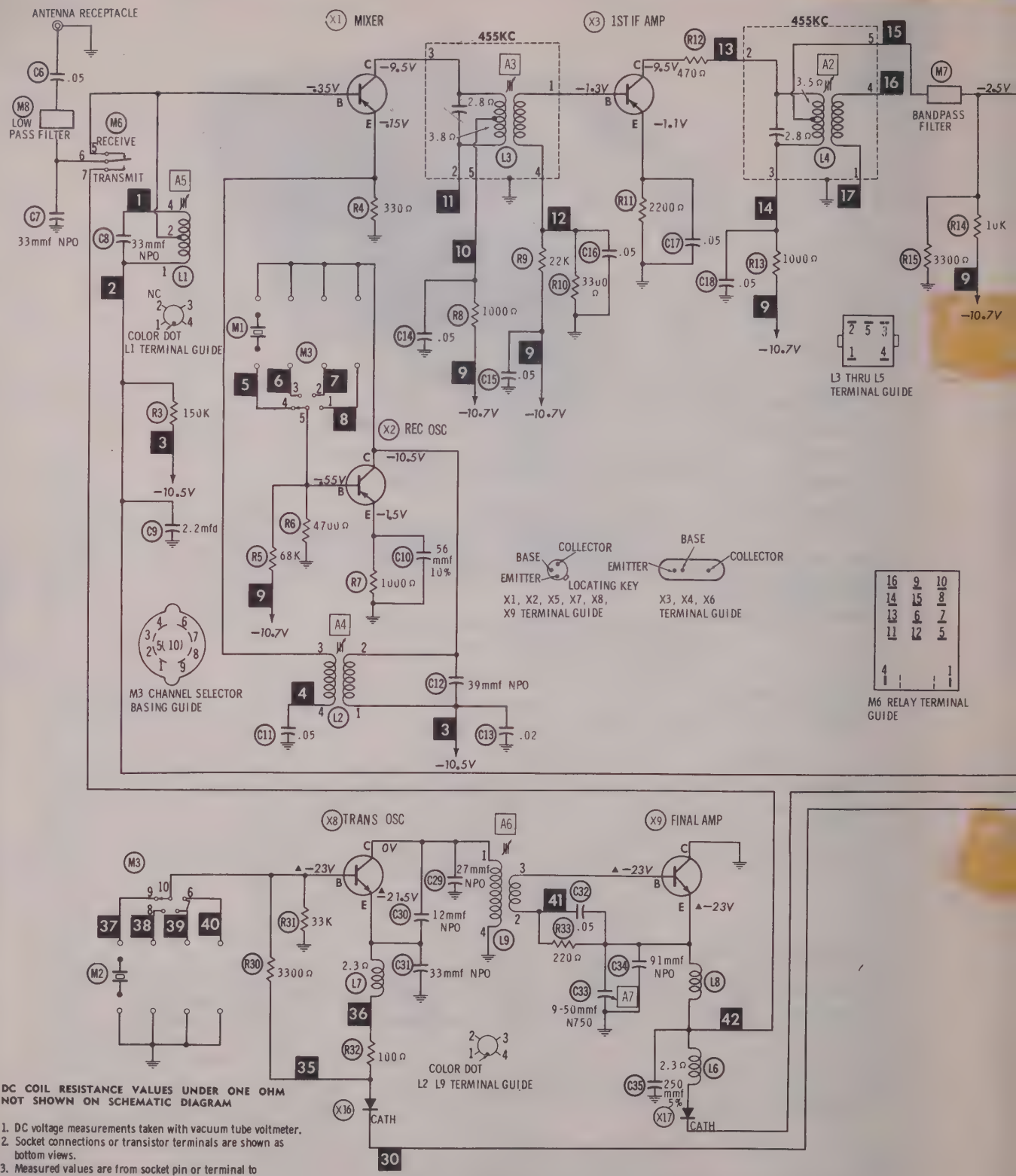

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE™

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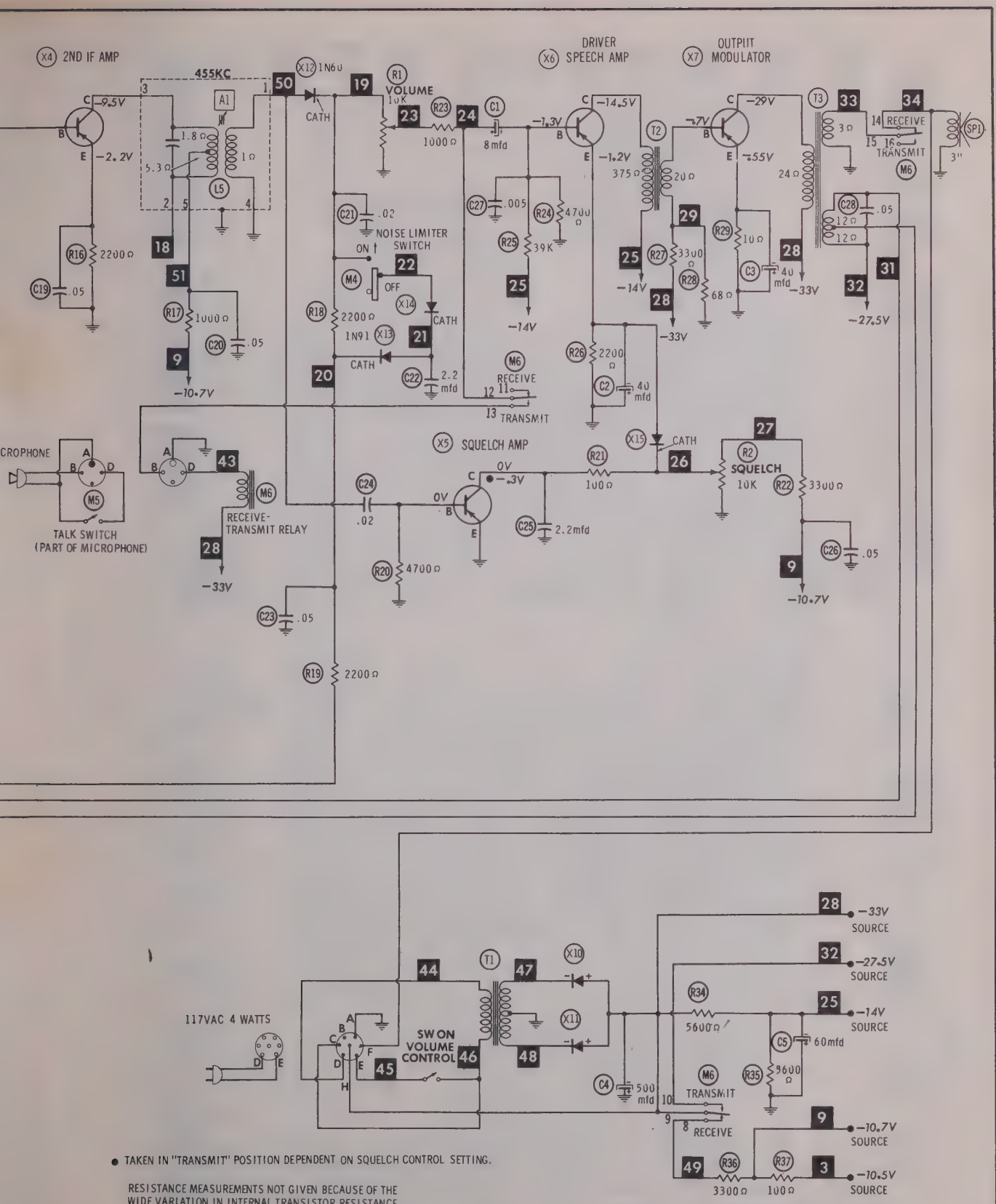
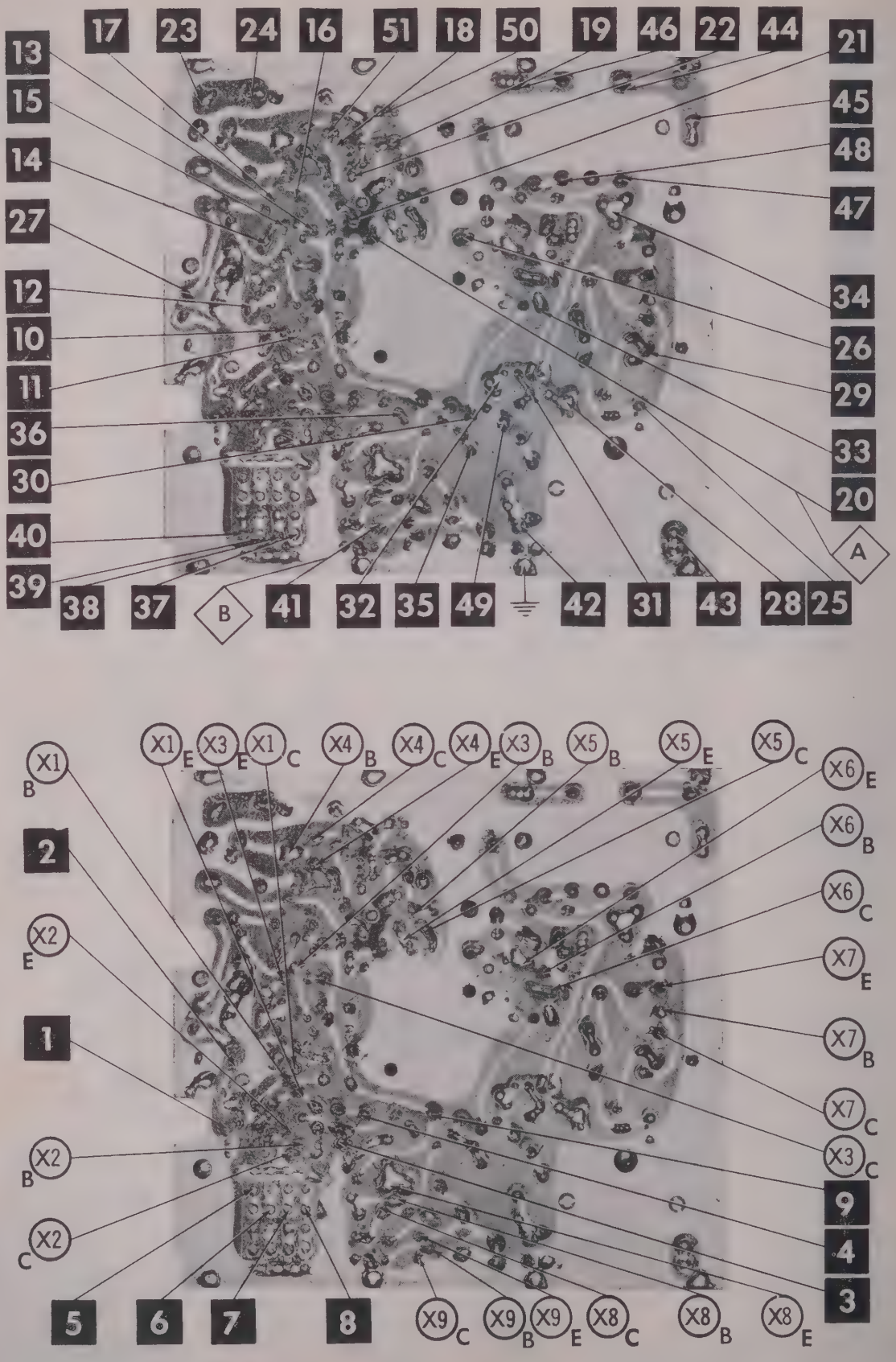


● TAKEN IN "TRANSMIT" POSITION DEPENDENT ON SQUELCH CONTROL SETTING.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

OSBORNE MODEL 300



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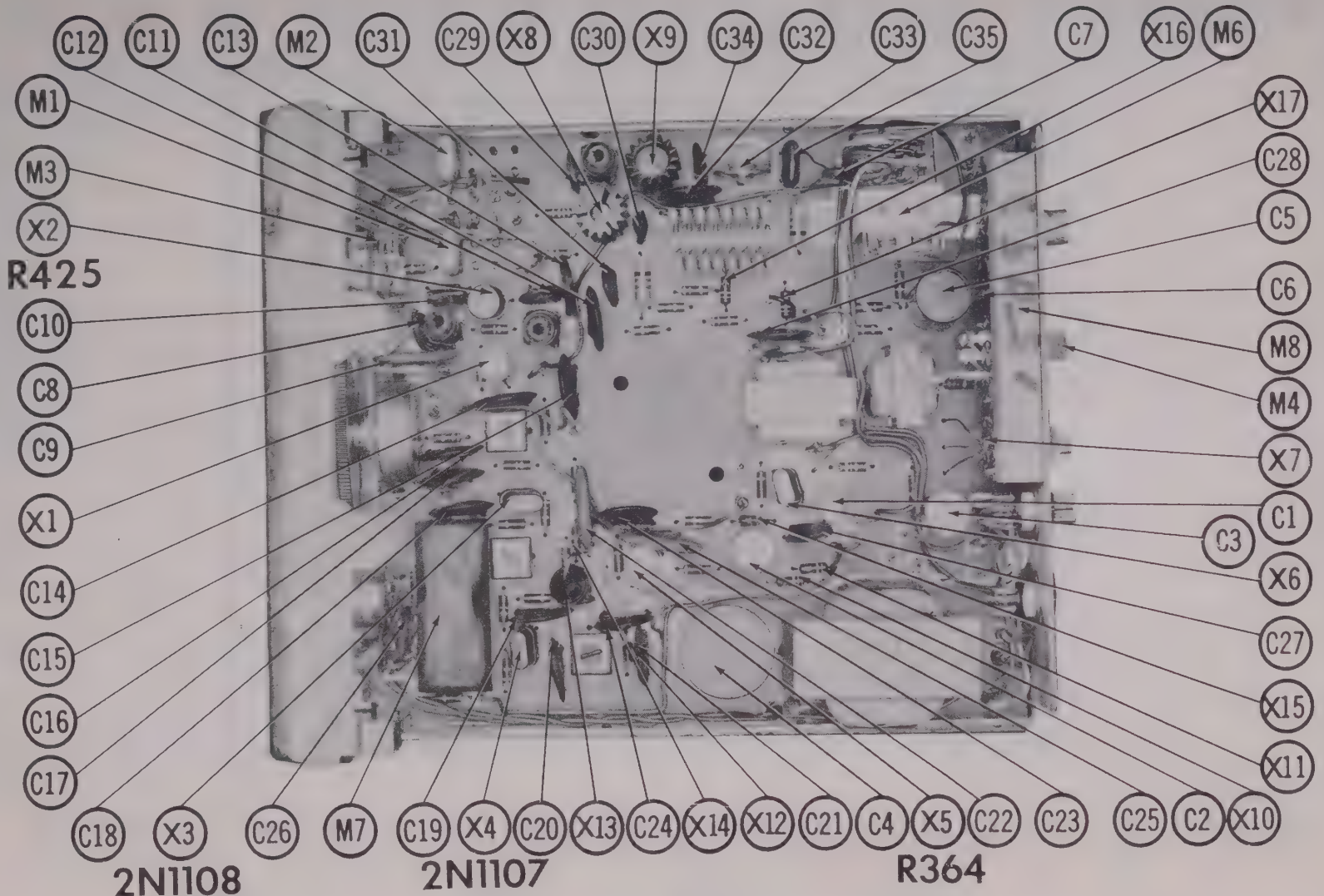
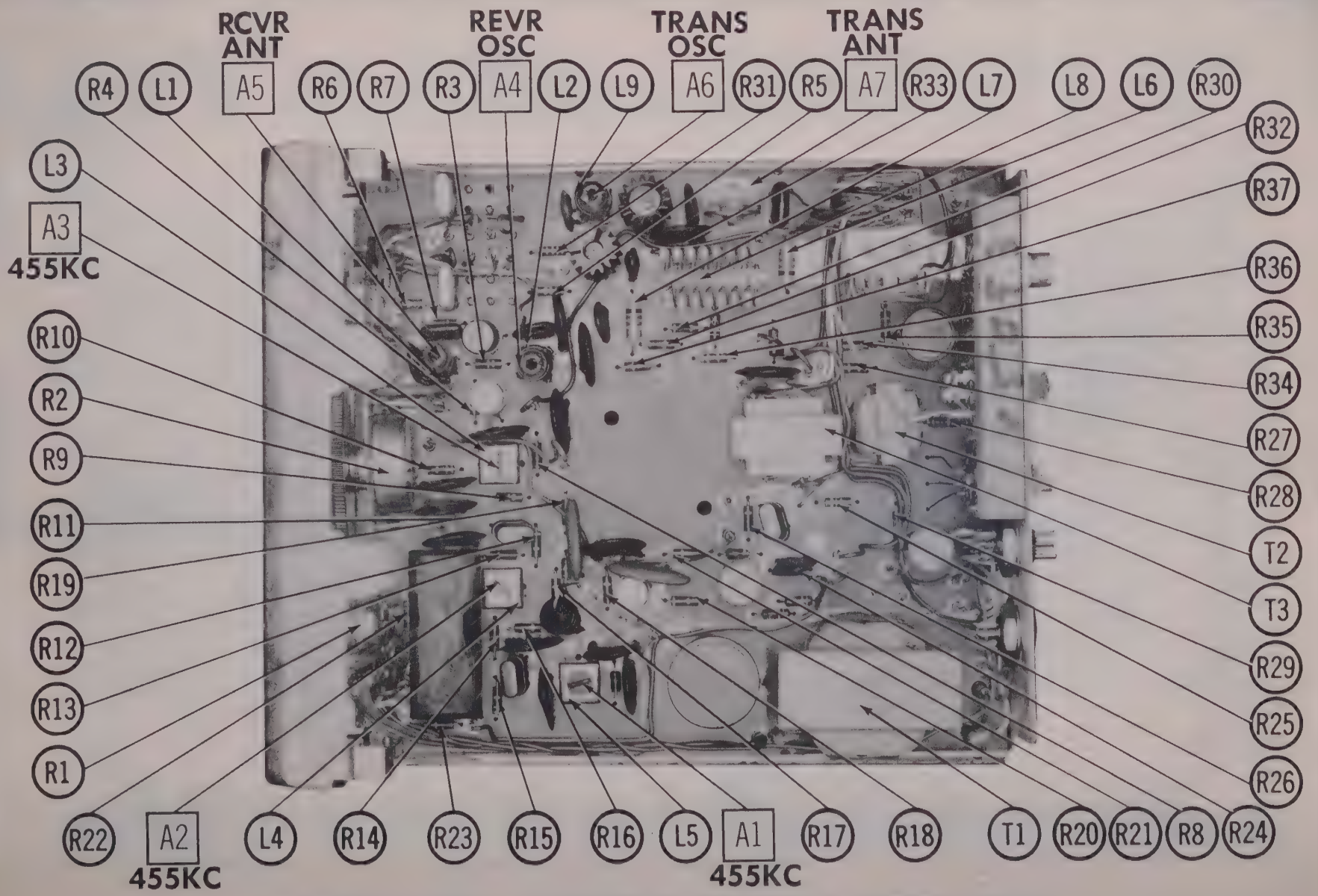


CHASSIS TOP VIEW — CAPACITOR, TRANSISTOR & MISC. IDENT.



CHASSIS TOP VIEW — ALIGNMENT, INDUCTOR & RESISTOR IDENT.

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in 12 Colors
		8524 (Stranded) Available in 12 Colors
Shielded Antenna Lead	Use BELDEN No.	8214 Lowest Loss (RG-8/U Type)
		8237 Low Loss (RG-8/U)
		8240 (Solid) Miniature (RG-58/U)
		8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable	Use BELDEN No.	8497 3 Conductor- 1 Shielded for Press-to-Talk (Neoprene)
		8496 3 Conductor- 1 Shielded for Press-to-Talk (Vinyl)
Ignition Noise Suppression	Use BELDEN No.	7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No.	8661 (3/8 In.)

TRANSISTORS

ITEM No.	MFGR. PART NO.	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	8314	Mixer	2N1179		PNP
X2	8308	Rec. Osc. (R425)	2N1178		PNP
X3	8301	1st IF Amp. (2N1108)	2N1180		PNP
X4	8300	2nd IF Amp. (2N1107)	2N1180		PNP
X5	8309	Squelch Amp. (R364)	2N406	2N465	PNP
X6	8312	Driver-Speech Amp.	2N406	2N465	PNP
X7	8310	Output-Modulator (S-499)	2N408		PNP
X8	8313	Trans. Osc.			NPN
X9	8316	Final Amp.			NPN

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES	NOTES
			RCA PART No.	SARKES TARZIAN PART No.	RAYTHEON PART No.	
X10	.015A	8306	1N1763	F2		Power Rectifier
X11	.015A	8306	1N1763	F2		Power Rectifier
X12		8305			1N60	Detector
X13		8318				Noise Limiter (1N91)
X14		8305			1N60	Noise Limiter
X15		8305			1N60	Squelch Diode
X16		8306	1N1763			Transmit Limiter
X17		8306	1N1763			Transmit Limiter

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	OSBORNE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	8	10	8220	BCD12008	ECPB407	MT1-5	PET1340	MLV10-10	VL-1126
C2	40	6	8223	BCD6050	ECPB115	MT1-15	TT6X40	MLV40-6	VL-1094
C3	40	6	8223	BCD6050	ECPB115	MT1-15	TT6X40	MLV40-6	VL-1094
C4	500	30	8224						
C5	60	40	8222	PTT98	ECPB816	MT1-17	PET1980	MLV50-50	TE-1307

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.05		BPD-05	DDA-503	H-05S5		TA-150	TG-S50
C7	33 NPO		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C8	33 NPO		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C9	2.2mfd 3V	#8216		UK-225				HY-150
C10	56 10%		1469-000056	TCZ-56	22R5Q56	CM-19B-560	CNO-456	MS-456
C11	.05		BPD-05	DDA-503	H-05S5		TA-150	TG-S50
C12	39 NPO		NPO-DI 39	DTZ-39	C10Q39C	CCTO-390	CNO-439	10TCC-Q39
C13	.02		BPD-02	DD-203	H-05S2	CCD-203	TA-120	TG-S20
C14	.05		BPD-05	DDA-503	H-05S5		TA-150	TG-S50
C15	.05		BPD-05	DDA-503	H-05S5		TA-150	TG-S50
C16	.05		BPD-05	DDA-503	H-05S5		TA-150	TG-S50
C17	.05		BPD-05	DDA-503	H-05S5		TA-150	TG-S50
C18	.05		BPD-05	DDA-503	H-05S5		TA-150	TG-S50
C19	.05		BPD-05	DDA-503	H-05S5		TA-150	TG-S50
C20	.05		BPD-05	DDA-503	H-05S5		TA-150	TG-S50
C21	.02		BPD-02	DD-203	H-05S2	CCD-203	TA-120	TG-S20
C22	2.2mfd 3V	#8216		UK-225				HY-150
C23	.05		BPD-05	DDA-503	H-05S5		TA-150	TG-S50
C24	.02		BPD-02	DD-203	H-05S2	CCD-203	TA-120	TG-S20
C25	2.2mfd 3V	#8216		UK-225				HY-150
C26	.05		BPD-05	DDA-503	H-05S5		TA-150	TG-S50
C27	.005		BPD-005	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C28	.05		BPD-05	DDA-503	H-05S5		TA-150	TG-S50
C29	27 NPO		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C30	12 NPO			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C31	33 NPO		NPO-DI 33	DTZ-33	C10Q33C	CCTO-33	CNO-433	10TCC-Q33
C32	.05		BPD-05	DDM-503	H-05S5		TA-150	TG-S50
C33	9-50 N750	#8250		822-AN		404		
C34	91 NPO		NPO-DI 100	TCZ-91	C10Q91C	CCTO-101	CNO-310	10TCC-Q91
C35	250 5%		1469-00025	TCZ-240	22R5T25	CM-19B-251J	MCE240	MS-325

Osborne Part Number.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			OSBORNE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	10K	8424	JP2-103	44-10K-W		
R2	Squelch	10K	8425				

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS
R3	150K			
R4	330Ω			
R5	68K			
R6	4700Ω			
R7	1000Ω			
R8	1000Ω			
R9	22K			
R10	3300Ω			
R11	2200Ω			
R12	470Ω			
R13	1000Ω			
R14	10K			
R15	3300Ω			
R16	2200Ω			
R17	1000Ω			
R18	2200Ω			
R19	2200Ω			
R20	4700Ω			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS
R21	100Ω			
R22	3300Ω			
R23	1000Ω			
R24	4700Ω			
R25	39K			
R26	2200Ω			
R27	3300Ω			
R28	68Ω			
R29	10Ω			
R30	3300Ω			
R31	33K			
R32	100Ω			
R33	220Ω			
R34	5600Ω			
R35	5600Ω			
R36	3300Ω			
R37	100Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		OSBORNE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	
L1	Receiver Ant. Coil	8416					
L2	Receiver Osc.	8415					
L3	1st IF	8421					
L4	2nd IF	8421					
L5	3rd IF	8422					
L6	RF (22uh)	8420	TV-192	9310-44	RTC-8525	T863	
L7	RF (22uh)	8420	TV-192	9310-44	RTC-8525	T863	
L8	Trans. Output	8418					
L9	Trans. Osc.	8417					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	OSBORNE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117VAC @ .05A	47VAC @ .070A		8413					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	OSBORNE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6	1	8427					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	OSBORNE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	300Ω	3-4Ω	8426					

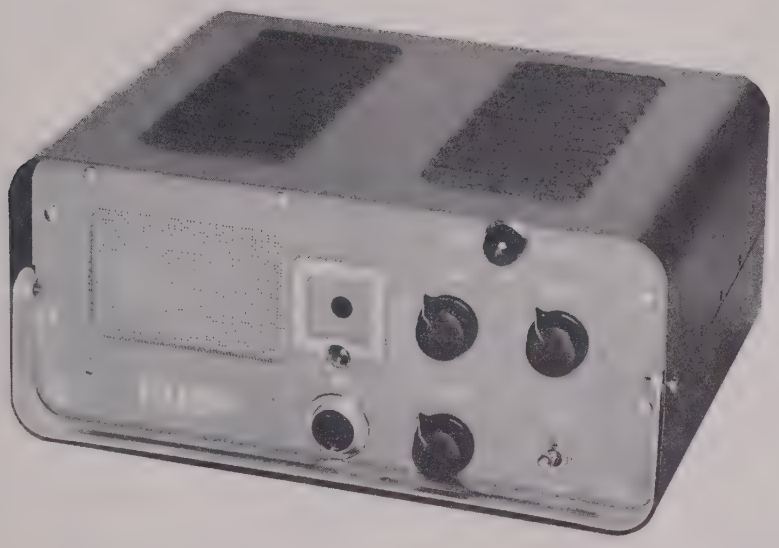
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OSBORNE PART No.	QUAM PART No.	
SP1	3"	PM	3-4Ω	8429		

MISCELLANEOUS

ITEM No.	PART NAME	OSBORNE PART No.	NOTES
M1	Crystal	8453	Receive (When Ordering, Mention Model, Part Number and Channel or Freq.)
M2	Crystal	8451	Transmit (When Ordering, Mention Model, Part Number and Channel or Freq.)
M3	Switch	8523	Channel Selector
M4	Switch	8529	Noise Limiter SPST
M5	Switch	8530	Talk (Mounted on Mic) Spring Loaded SPST Normally Open
M6	Relay	8419	Receive - Transmit
M7	Filter	8423	Band Pass
M8	Filter	8918	Low Pass
M9	Microphone	8428	

POLY COM MODELS PC-2-6, PC-2-12



POLY COM MODELS
PC-2-6, PC-2-12

TRADE NAME	Poly Com Models PC-2-6, PC-2-12
MANUFACTURER	Polytronics Laboratories, Inc., 253 Crooks Ave., Clifton, N. J.
TYPE SET	AC-Battery Operated 11 Tube Crystal Controlled, Double Conversion Citizens Band Transmitter-Receiver
POWER SUPPLY	Model PC-2-6: 110-120 Volts AC, 60 Cycles (or) 6 Volt Storage Battery Model PC-2-12: 110-120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery
RATING	51 Watts, .5 Amp. @ 117 Volts AC (Receive); 70 Watts, .7 Amp. @ 117 Volts AC (Transmit) 6 Amp. @ 12.6 Volts DC (or) 12 Amp. @ 6.3 Volts DC
TUNING RANGE	Any 4 of Citizens Band Channels 1 thru 22

NOTICE

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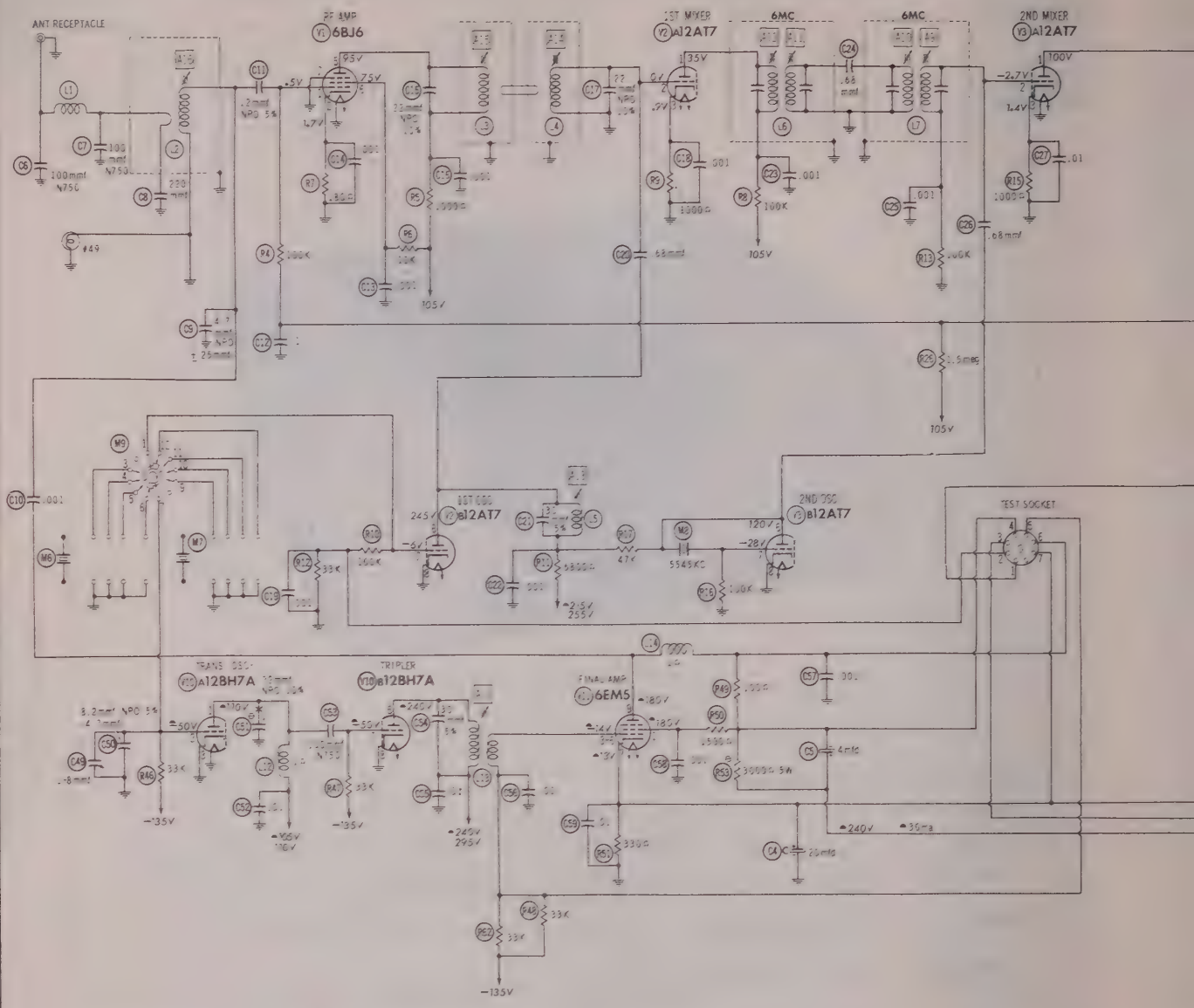
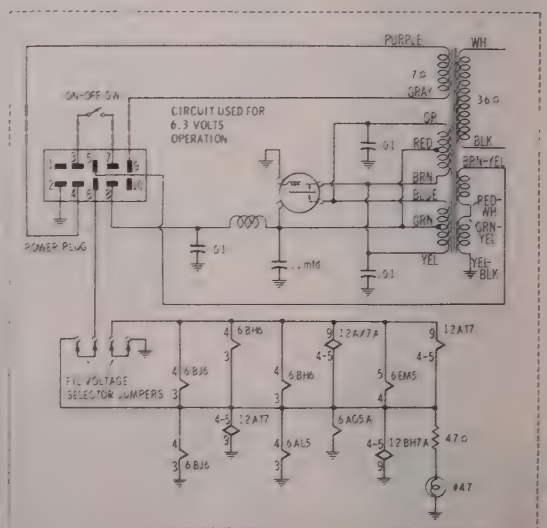
KZ766



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BJ6	330K	.8Ω	FIL	FIL	*2500Ω	*..K	0Ω		
V2	A12AT7	*..0K	0Ω	1800Ω	FIL	FIL	*..2K	.33K	0Ω	FIL
V3	B12AT7	*2500Ω	..00K	1800Ω	FIL	FIL	*95K	..00K	0Ω	FIL
V4	6BJ6	330K	.8Ω	FIL	FIL	*2500Ω	*2500Ω	0Ω		
V5	6BH6	330K	.8Ω	FIL	FIL	*2500Ω	*2500Ω	0Ω		
V6	6BH6	5.5Ω	400Ω	FIL	FIL	*2500Ω	*2500Ω	0Ω		
V7	6AL5	1.8meg	120K	FIL	FIL	0Ω	0Ω	470K		
V8	12AX7A	*500K	100K	68K	FIL	FIL	330K	.82K	.5K	FIL
V9	6AG5A	NC	330Ω	FIL	FIL	*340Ω	*680Ω	470K		
V10	12BH7A	*2500Ω	..33K	0Ω	FIL	FIL	*680Ω	..32K	0Ω	FIL
V11	6EM5	*680Ω	NC	..6K	FIL	FIL	NC	330Ω	NC	*540Ω

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION WITH ANL ON WITH MICROPHONE UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "TRANSMIT" POSITION.
† MEASURED FROM OUTPUT OF M2.
* MEASURED FROM JUNCTION OF C2A AND R58.
NC NO CONNECTION



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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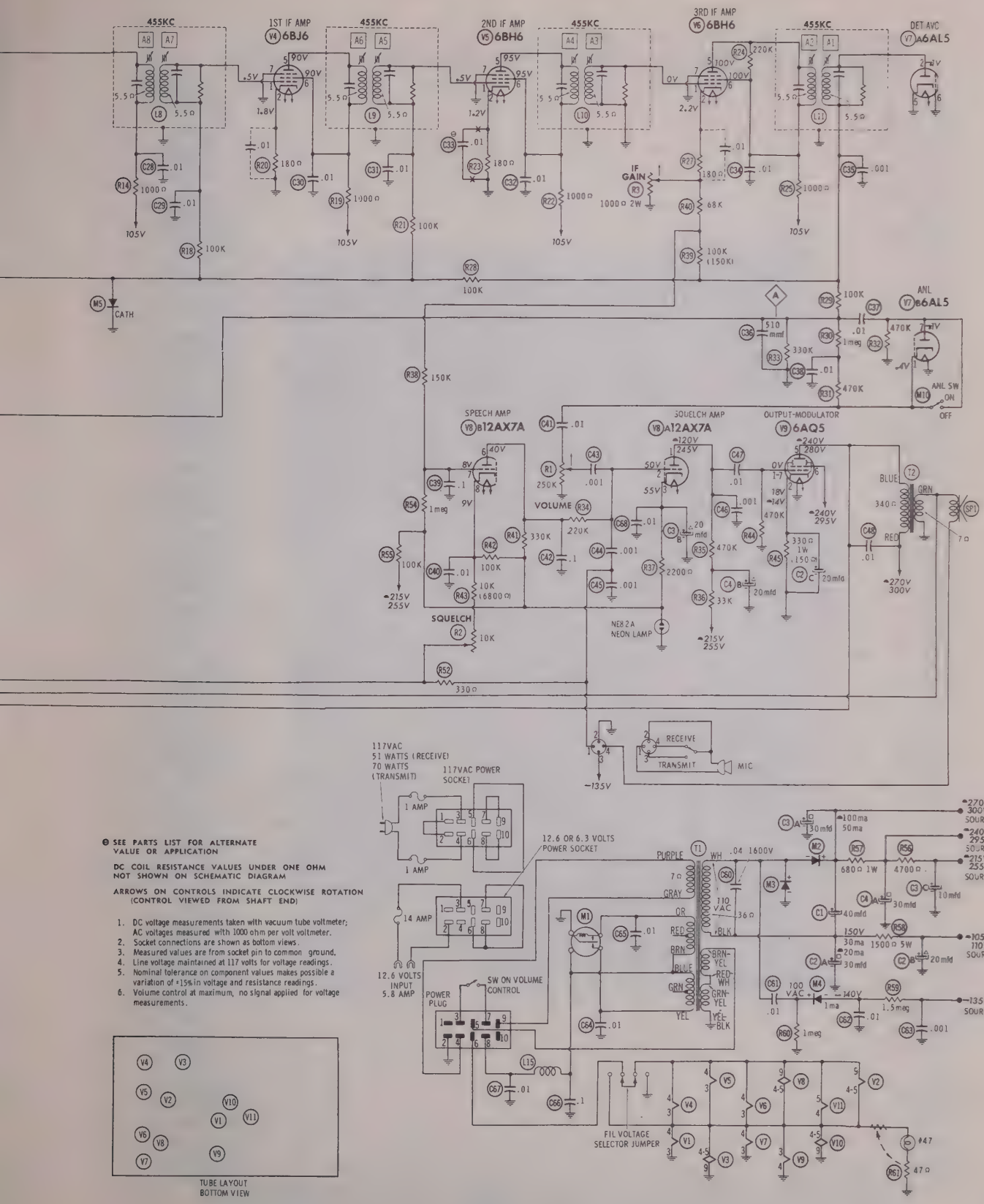


Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

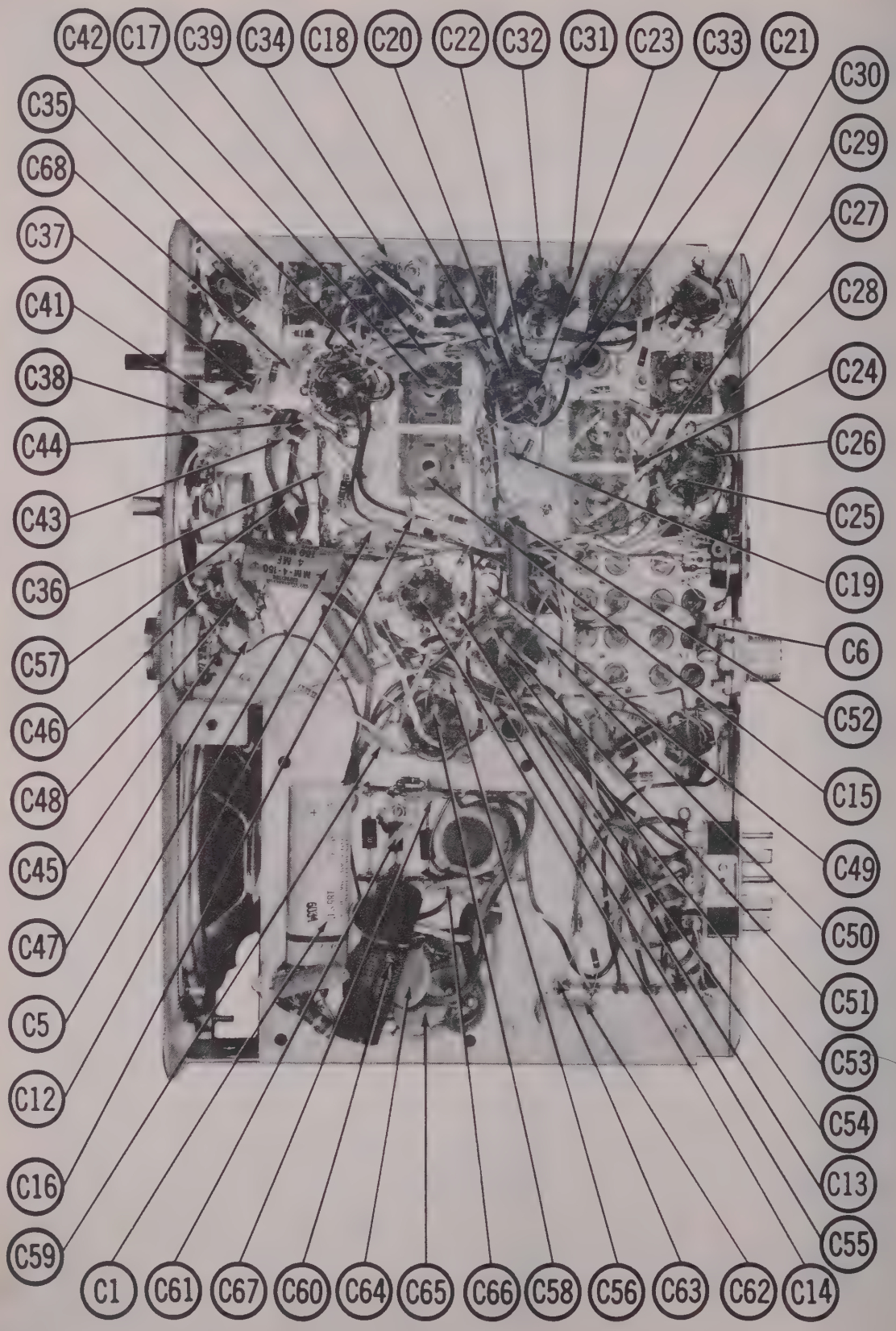
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

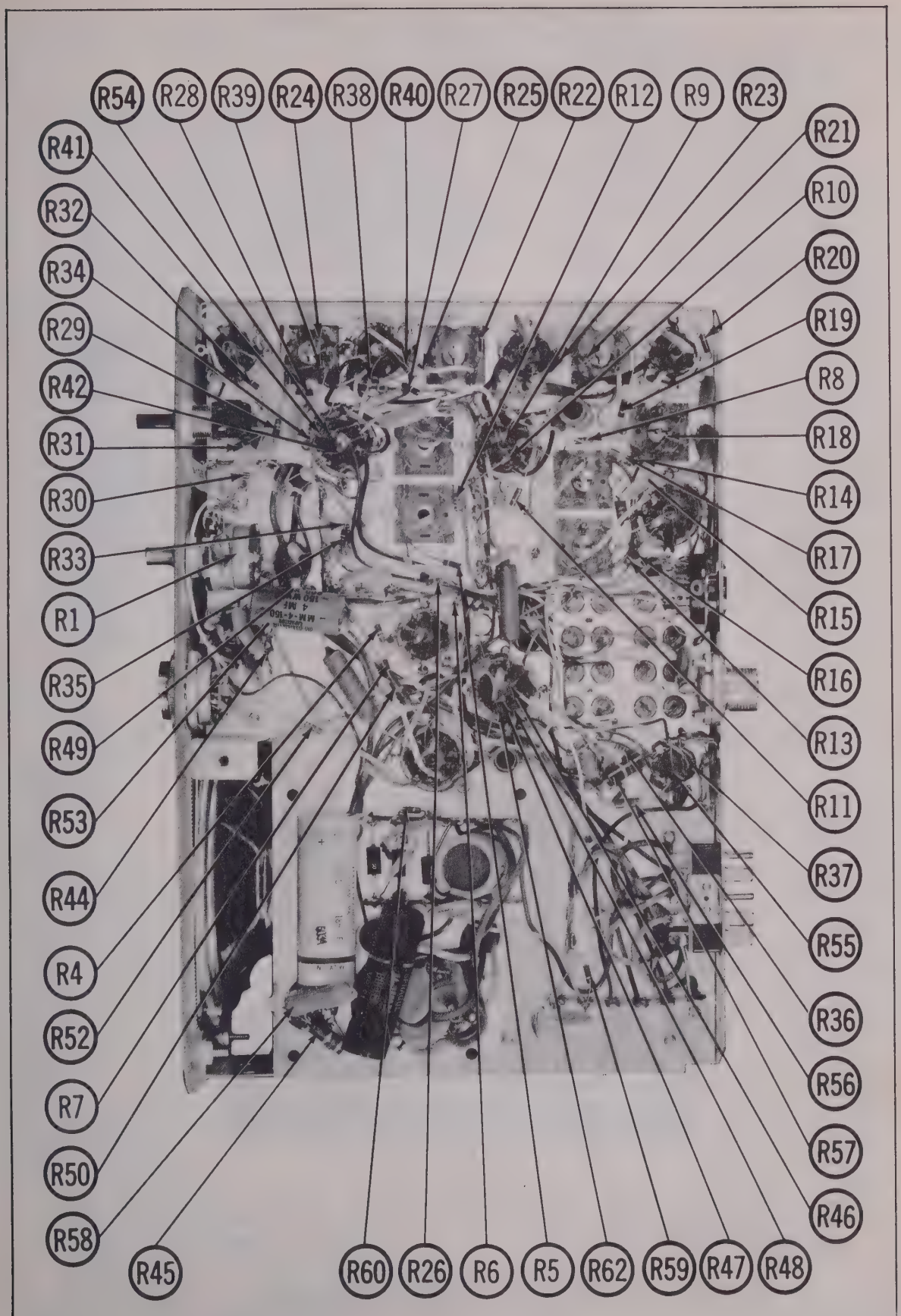
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TUBE LAYOUT
BOTTOM VIEW

POLY COM MODELS PC-2-6, PC-2-12



CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW-RESISTOR IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

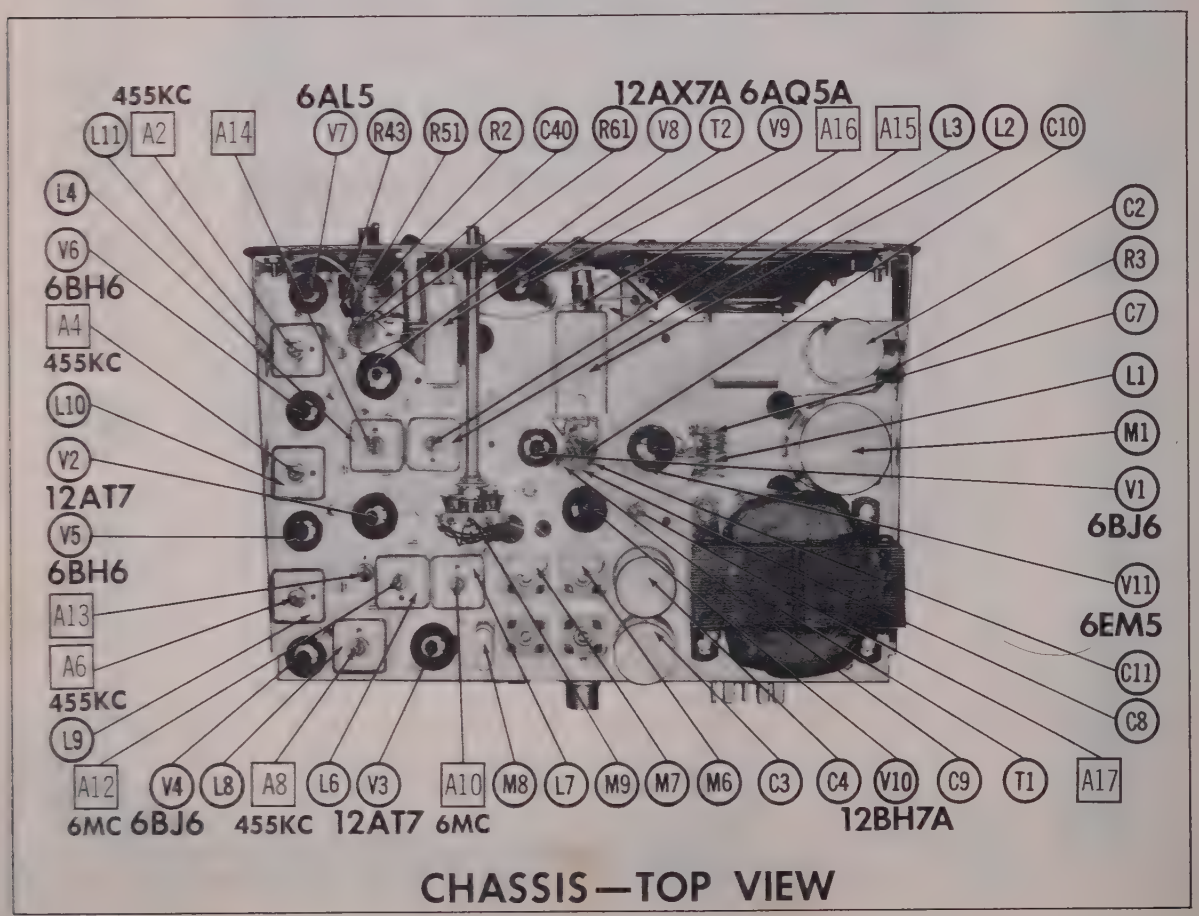
Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: .... GENERAL CEMENT #8721, 8722
WALSCO #2519

RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 2 (grid) of 2nd Mixer. Low side to chassis.	455KC (Unmod.)		DC probe to point (A). Common to chassis.	A1, A2, A3, A4, A5, A6, A7, A8	Adjust for maximum deflection.
2.	High side thru .01mfd to pin 2 (grid) of 1st Mixer. Low side to chassis.	6.0MC		"	A9, A10, A11, A12	"
3.	"	Freq. of highest channel		"	A13	Adjust for maximum deflection then detune 2 turns counterclockwise.
4.	High side thru .001mfd to pin 1 (grid) of RF Amp. Low side to chassis.	"		"	A14, A15	Adjust for maximum deflection.
5.	High side to antenna jack. Low side to chassis.	"		"	A16	"
6.	With the Squelch control fully counterclockwise, adjust the IF Gain control (R3) so that the receiver just breaks squelch with 5 microvolts signal applied to antenna jack.					

TRANSMITTER ALIGNMENT

Connect a dummy load, antenna or RF wattmeter to the antenna jack.
Select the center-most channel to be used.
Press the Transmitt button and adjust A17 for maximum output indication. Recheck A16 for peak.



CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	6BJ6	V7	Det. -AVC-ANL	6AL5
V2	1st Mixer-Osc.	12AT7	V8	AF Amp. -Squelch Amp. - Speech Amp.	12AX7A
V3	2nd Mixer-Osc.	12AT7			
V4	1st IF Amplifier	6BJ6	V9	Output-Modulator	6AQ5A
V5	2nd IF Amplifier	6BH6	V10	Trans. Osc. -Tripler	12BH7A
V6	3rd IF Amplifier	6BH6	V11	Final Amplifier	6EM5

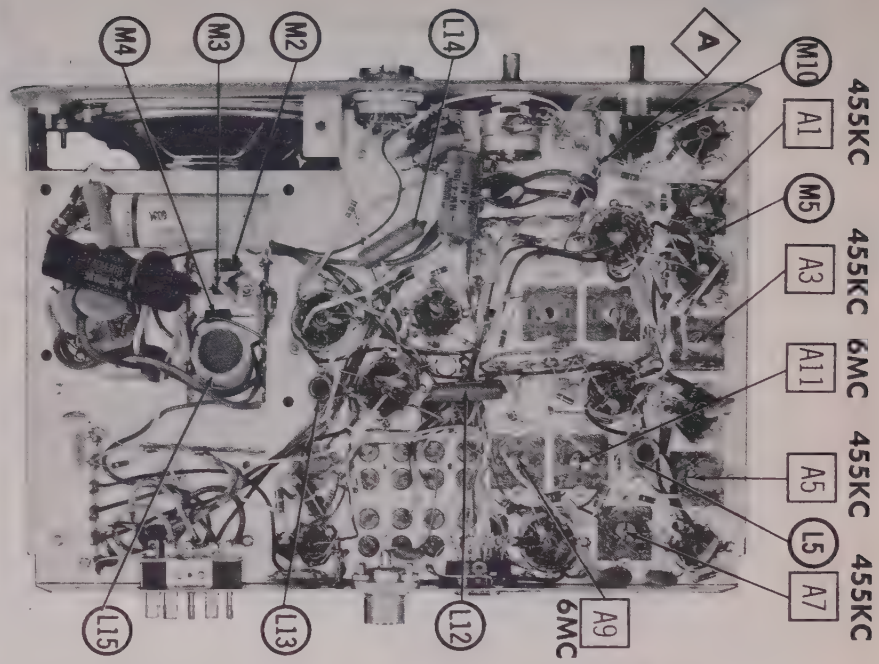
ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Poly-Com PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	40	250		PRS1580	BR4025	QT1-14	TC58	TD-40-250	TVA-1511
C2A	■30	350		AFH3-109	C0830	XC3-25	FP330	TMT-3361	TVL-3636
B	▲20	350							
C	20	25							
C3A	■30	350		AFH3-28-30	C0225	XC3-11	FP330.7	TMT-3426	TVL-3639.8
B	▲20	350							
C	10	350							
C4A	■30	350		AFH3-109	C0830	XC3-25	FP330	TMT-3361	TVL-3636
B	▲20	350							
C	20	25							
C5	4	150		PRS1400	BBR4-150	QT1-2	TT150X4	TD-4-150	TVA-1402

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C7	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C8	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C9	4.7 NPO ± .25mmf		NPO-DI 4.7	DTZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C10	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C11	12 NPO 5%			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C12	.1			DF-104	CUB2P1	1LP-2-104	BT-010	2TM-P10
C13	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C14	.001		BPL-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C15	22 NPO 10%		NPO-DI 22	DTZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22
C16	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C17	22 NPO 10%		NPO-DI 22	DTZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22
C18	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C19	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C20	.68mmf		NPO-SI .68	TCZ-R68				
C21	30 5%		1469-00003	TCZ-30	22R5Q3	CM-14B-300J		MS-43
C22	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C23	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C24	.68mmf		NPO-SI .68	TCZ-R68				
C25	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C26	.68mmf		NPO-SI .68	TCZ-R68				
C27	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.01	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	.001		BPL-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C36	510		DI-500	DD-511	L10T5	CCD-501	B-350	10TS-T50
C37	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	.1			DF-104	CUB2P1	1LP-2-104	BT-010	2TM-P10
C40	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C42	.1			DF-104	CUB2P1	1DP-2-104	BT-010	2TM-P10
C43	.001		BPL-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C44	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C45	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C46	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C47	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

CHASSIS—BOTTOM VIEW



FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C48	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C49	1-8							
C50	8.2 NPO 5%	(4.7) †	NPO-DI 8.2		C10V82C			10TCC-V82
C51	22 NPO 10%	Note 2	NPO-DI 22	DTZ-22	C10Q22C	CCTO-220	CNO-422	10TCC-Q22
C52	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C53	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C54	30 5%		1469-00003	TCZ-30	22R5Q3	CM-19B-300J		MS-43
C55	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C56	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C57	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C58	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C59	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C60	.04 1600V				CUB16S4	16DP-5-403	GEM-1614	MB-S4
C61	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C62	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C63	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C64	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C65	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C66	.1			DF-104	CUB2P1	1DP-2-104	BT-010	2TM-P10
C67	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C68	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

† Alternate Value.
Note 1. Not used in some versions.
Note 2. Not used in Models using 13MC Series Crystals.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Poly-Com PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	250K	½		B-51	A47-250K-Z	Q13-130	U44	Volume
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On
R2A	10K	½		B-15	A47-10K-Z	Q13-116	U18	Squelch
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R3	1000Ω	2(WW)			39-1000	112-1000	FL-1K	IF Gain

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No	WORKMAN TV PART No	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	100K				R34	220K			
R5	1000Ω				R35	470K			
R6	10K				R36	33K			
R7	180Ω				R37	2200Ω			
R8	100K				R38	150K			
R9	1000Ω				R39	100K			(150K) *
R10	100K				R40	68K			
R11	6800Ω				R41	330K			
R12	33K				R42	100K			
R13	100K				R43	10K			(6800Ω) *
R14	1000Ω				R44	470K			
R15	1000Ω				R45	330Ω 1W			(150Ω) *
R16	100K				R46	33K			
R17	47K				R47	33K			
R18	100K				R48	33K			
R19	1000Ω				R49	100Ω			
R30	180Ω				R50	1500Ω			
R21	100K				R51	330Ω			
R22	1000Ω				R52	330Ω			
R23	180Ω				R53	3000Ω 5W	PW5-3000	5W-SQ-3000	Note 1
R24	220K				R54	1meg			
R25	1000Ω				R55	100K			
R26	1.5meg				R56	4700Ω			
R27	180Ω				R57	680Ω 1W			
R28	100K				R58	1500Ω 5W	PW5-1500	5W-SQ-1500	
R29	100K				R59	1.5meg			
R30	1meg				R60	1meg			
R31	470K				R61	47Ω			
R32	470K				R62	33K			
R33	330K								

Note 1. Value may vary. Selected for 4.9W input power to final amp.
* Alternate Value

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Poly-Com PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant. Loading(5uh)						
L2	Ant.						
L3	RF						
L4	Mixer Grid						
L5	Osc. Plate						
L6	1st 6MC IF						
L7	2nd 6MC IF						
L8	1st 455KC IF		BC-352	12-C1	RTC-8632	T616	
L9	2nd 455KC IF		BC-352	12-C1	RTC-8632	T616	
L10	3rd 455KC IF		BC-352	12-C1	RTC-8632	T616	
L11	4th 455KC IF		BC-352	12-C1	RTC-8632	T616	
L12	RF Choke (10uh)		BC-566	4612	RTC-8522	T860	
L13	Tripler Plate		TV-116	6250	RTC-8586	T232A	
L14	RF Choke (10uh)		BC-566	4612	RTC-8522	T860	
L15	Hash Choke (12uh)		BC-537	5220	RTC-9182		

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Poly-Com PART No	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .7A or 12VDC@ 5.8A	110V@ .420A AC	6.3V@ 4.8A	P128C					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V@ 4.8A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Poly-Com PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	14K	3-4Ω	715W1A					

SPEAKER

ITEM No	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Poly-Com PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	P4-WA *	4A10T *	*Weather-proof Speaker

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				Poly Com PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12, 6V	115~			1609		12 Volt Versions
	Interrupter	6, 3V	115~					6 Volt Versions

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	Poly-Com PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M2	.100A	F6 *	1N1763	F6	* Some versions may use 60E5
M3	.100A	F6 *	1N1763	F6	♦ Some versions may use 40E5
M4	.001A	K200 ♦	1N1763	2F4	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		Poly-Com PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M5	HD6226				

MISCELLANEOUS

ITEM No.	PART NAME	Poly-Com PART No.	NOTES
M6	Crystal		Transmit (Order by freq. & Channel Desired)
M7	Crystal		Receive (Order by freq. & Channel Desired)
M8	Crystal		5545KC
M9	Switch		Channel Selector (Rotary Type)
M10	Switch		ANL Off-On (Toggle Types)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED BY FCC ARE PERMITTED TO MAKE CRYSTAL SUBSTITUTION OR EFFECT REPAIRS ON THE TRANSMITTER PORTION OF THIS UNIT.

RCA MODEL
CRM-P2A-5 (MI-555518)

TRADE NAME	RCA Model CRM-P2A-5,-MI-555518) Radiomarine
MANUFACTURER	Radio Corp. of America, Communication Products Dept., Radiomarine Marketing, Camden, N. J.
TYPE SET	AC-Battery Operated 5 Tube Crystal Controlled Citizens Band Transmitter-Receiver
POWER SUPPLY	110 - 120 Volts AC (or) 6 Volt Storage Battery (or) 12 Volt Storage Battery
RATING	30 Watts, .30 Amp. @117 Volts AC (Receiver); 37 Watts, .37 Amp. @117 Volts AC (Transmit) or 3.8 Amp. @6.3 Volts DC (Receive); 4.3 Amp. @6.3 Volts DC (Transmit) or 7.6 Amp. @12.6 Volts DC (Receive); 9.6 Amp. @12.6 Volts DC (Transmit)
TUNING RANGE	Any one of Citizens Band Channels 1 thru 22

ALIGNMENT INSTRUCTIONS

RECEIVER

Grid circuit tuning of the RF amplifier is automatically accomplished by the normal alignment for the transmitter. The receiver is tuned for the best signal-to-noise ratio on a weak modulated signal on the proper operating frequency by adjusting A6. This adjustment may be made without removing the unit from the case.

The lead length of screen bypass capacitor C8 is critical as it determines the neutralization of V1, and thus the amount of signal coupled from the superregenerative detector to the antenna circuit. If this capacitor is replaced, another of the same value and type should be used, with the same lead lengths.

In addition to the increased radiation that occurs when this tube is not neutralized, the receiver will oscillate. Oscillation will also occur if the relay does not short the crystal in the receiver position.

When squelch control is incorporated in receiver, turn to maximum clockwise position.

TRANSMITTER

Connect DC probe of VTVM through 100K resistor to point Ⓐ, low side to chassis. With the antenna disconnected, adjust A1 for maximum deflection.

Adjust A2 for minimum plate current.

Adjust A3 for maximum plate current, with antenna in place.

Adjust A4 to approximately 3/4 of maximum capacity.

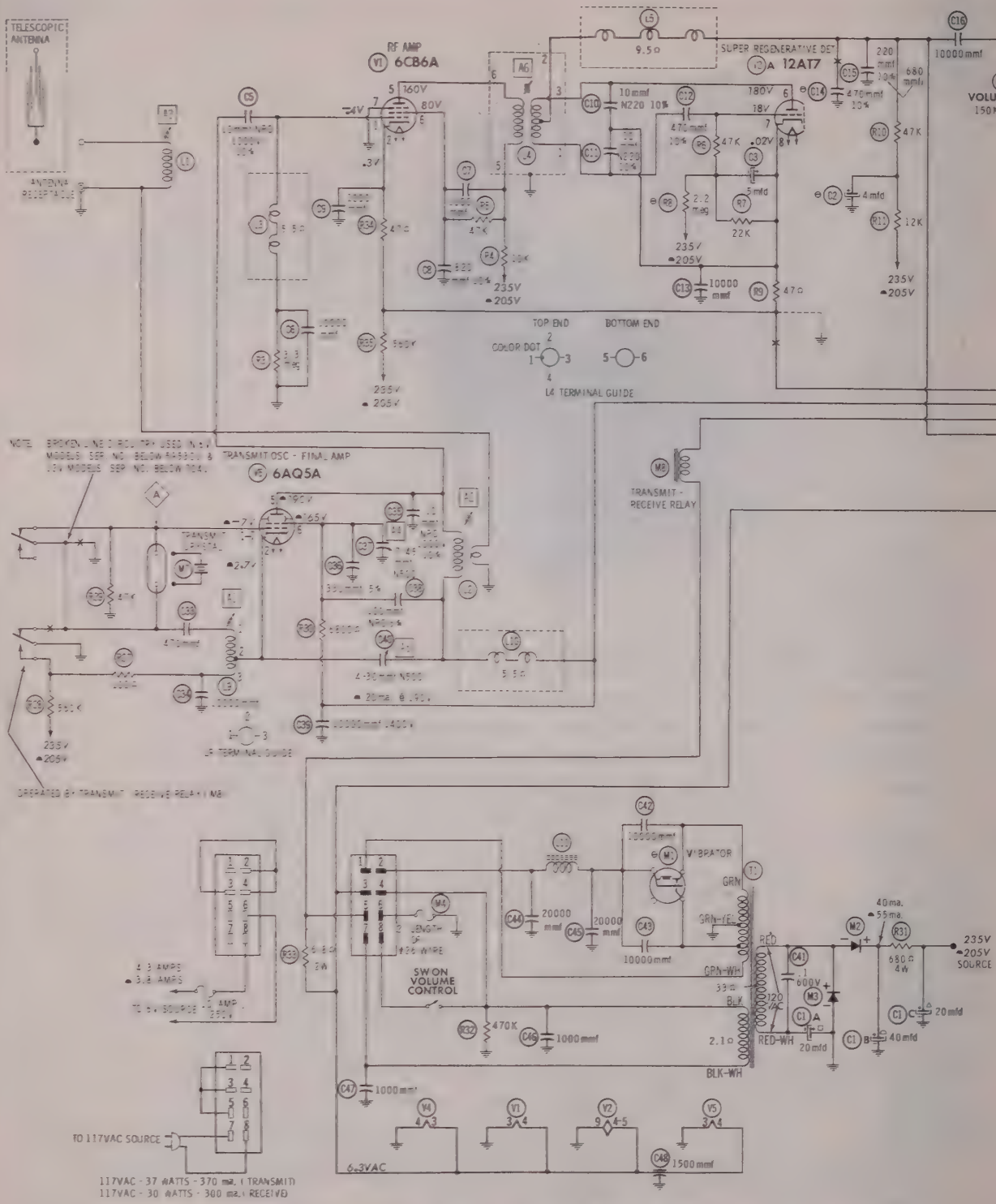
The voltage variation at point Ⓐ should be noted when A2 is tuned through resonance. Adjust A5 for minimum variation in grid voltage with the tuning of A2. When properly neutralized, this variation should not cause the grid voltage to be less than -5 volts.

Do not readjust A2 with the antenna in place or an external antenna connected.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KZ547



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6A	3.3meg	47Ω	0Ω	0Ω	+40K	+57K	0Ω		
V2	12AT7	+55K	...5meg	0Ω	1Ω	1Ω	+60K	70K	47Ω	0Ω
V3	12AT7	+320K	.5meg	0Ω	0Ω	0Ω	+225K	10meg	0Ω	1Ω
V4	6AQ5A	470K	470Ω	1Ω	0Ω	+1000Ω	+680Ω	470K		
V5	6AQ5A	+47K	+100Ω	0Ω	1Ω	+1055Ω	+710Ω	+47K		

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
+ MEASURED IN "TRANSMIT" POSITION. † MEASURED FROM OUTPUT OF M2.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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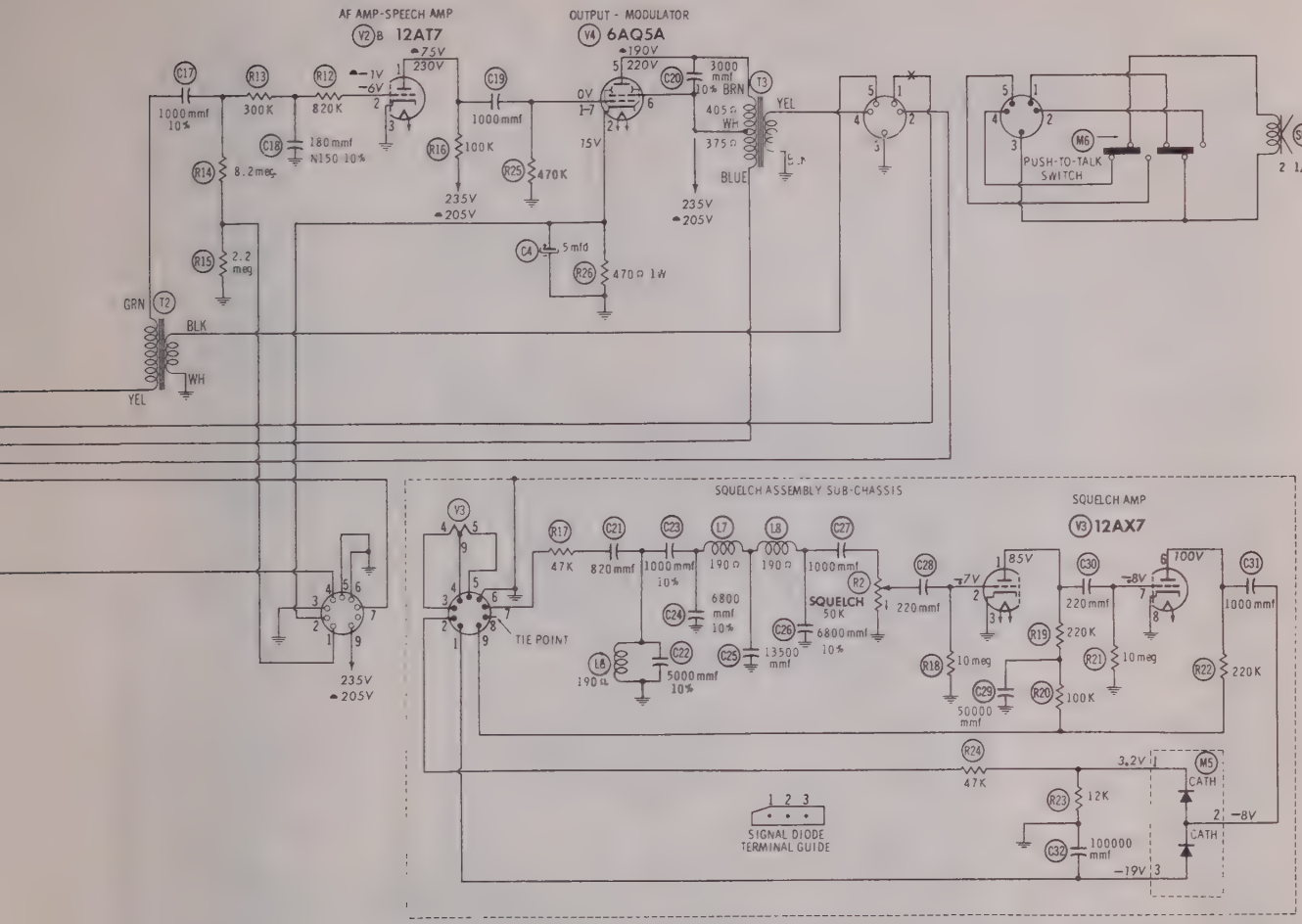


● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

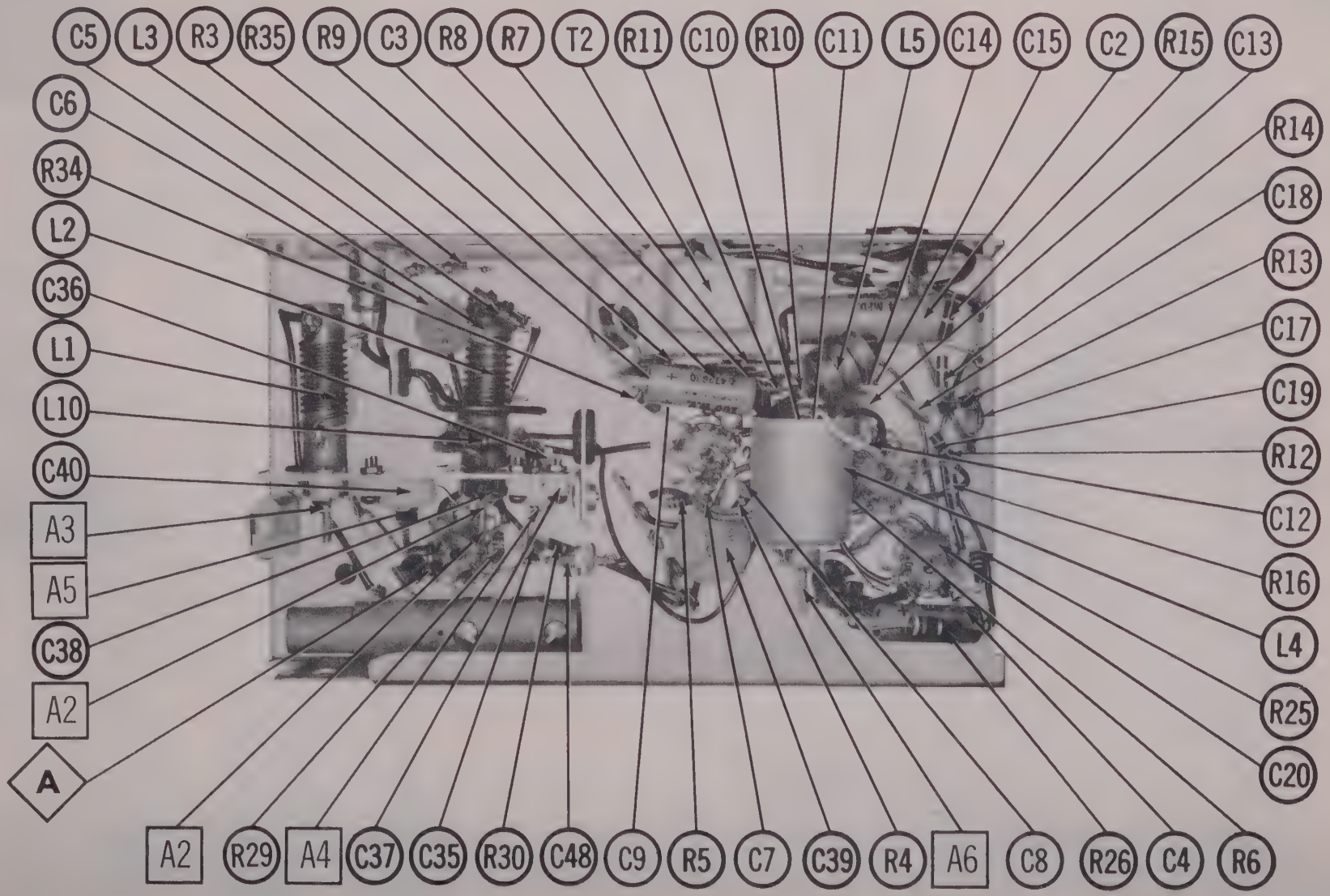
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

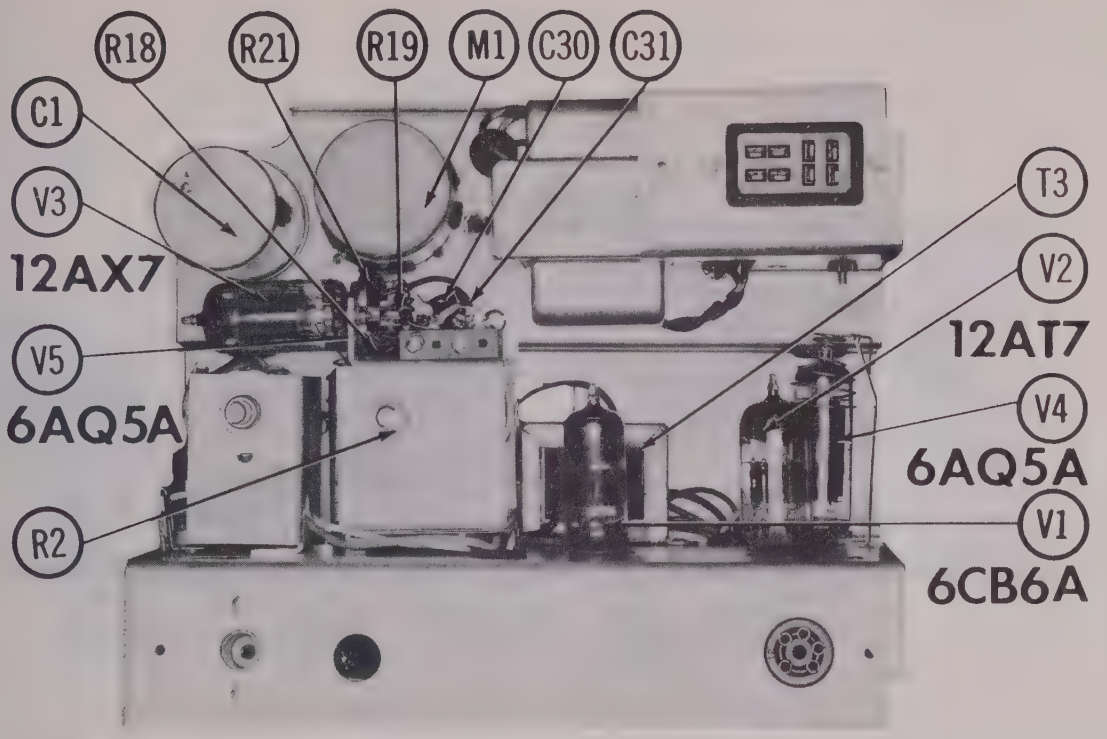
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

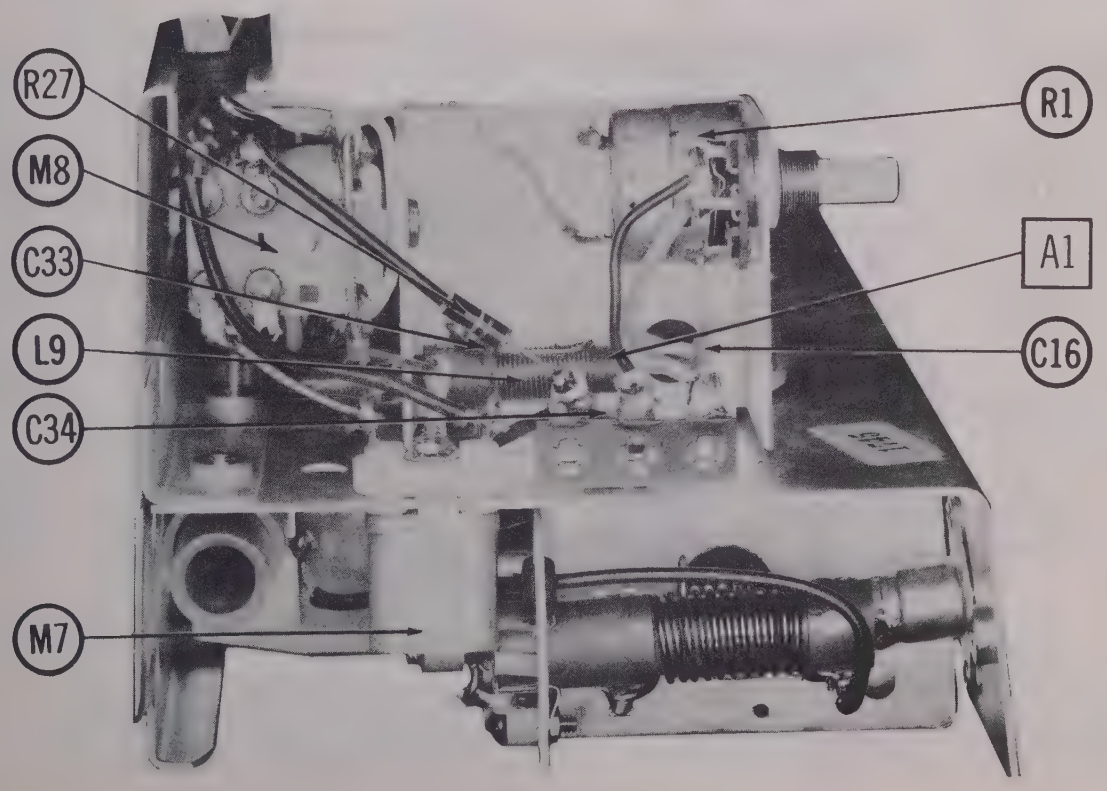
RCA MODEL CRM-P2A-5 (MI-555518)



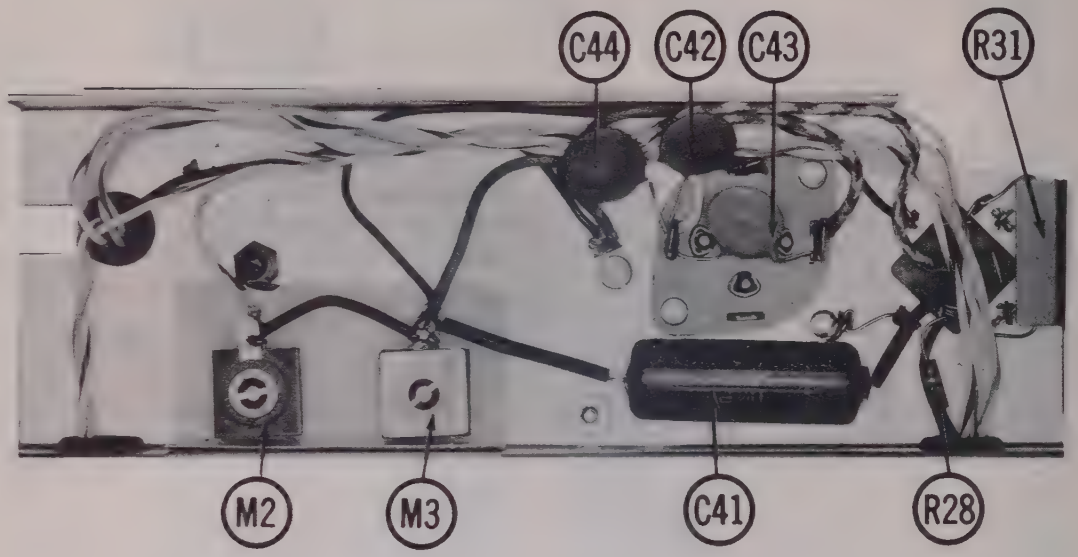
CHASSIS-BOTTOM VIEW



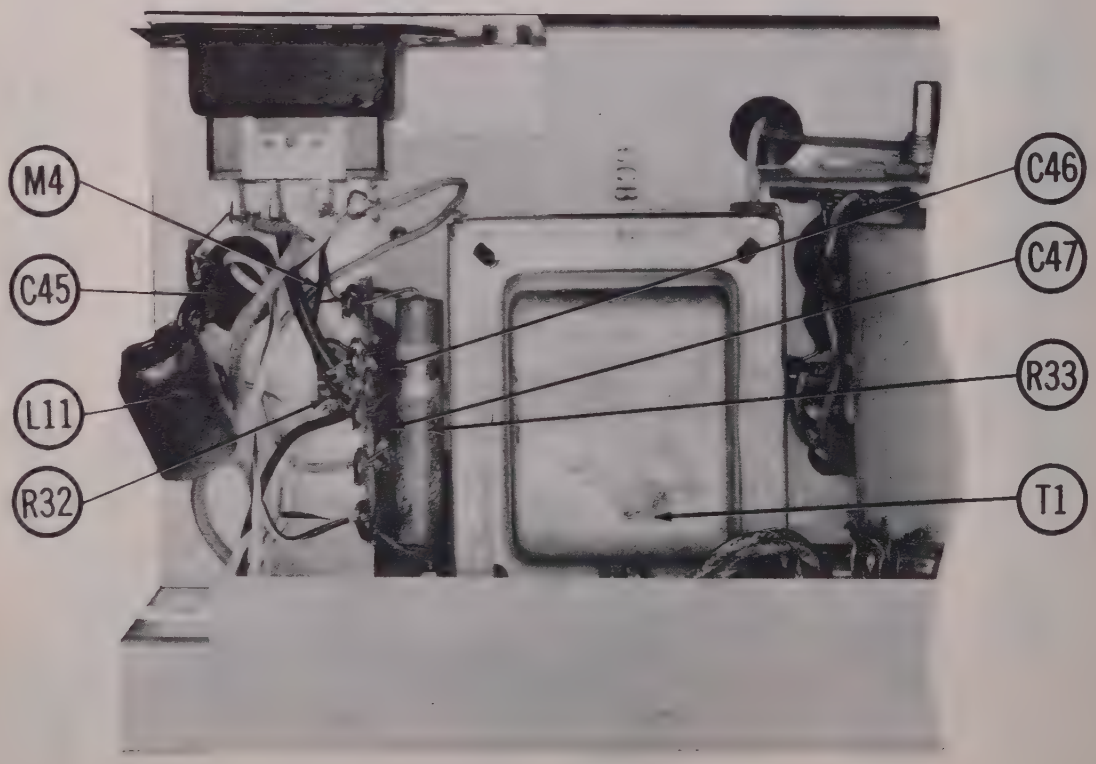
CHASSIS-TOP VIEW



TRANSMITTER SECTION



VIBRATOR CHASSIS-BOTTOM VIEW



POWER SECTION

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆			◆ RAYTHEON ◆ SYLVANIA ◆		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	6CB6A	V3	Squelch Amp.	12AX7
V2	Superregen. Det. - AF Amp. -Speech Amp.	12AT7	V4	Output-Modulator	6AQ5A
			V5	Trans. Osc. -Final Amp.	6AQ5A

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▪20	350		AFH4-04	C0150	FP420.35	TMD-2640	TVL-3724.4	
B	▲40	350					TD-40-350		
C	▲20	350							
C2	4	350		PRS1600	BR435	TC697	TD-4-450	TVA-1601	①
C3	5	100		SRE150V5	BBR4-150	TC40	TD-4-150	TVA-1403	
C4	5	25		PRS1310	BBR5-50	TC30	TD-5-25	TVA-1203	

① Some versions may use 5mfd in this application.

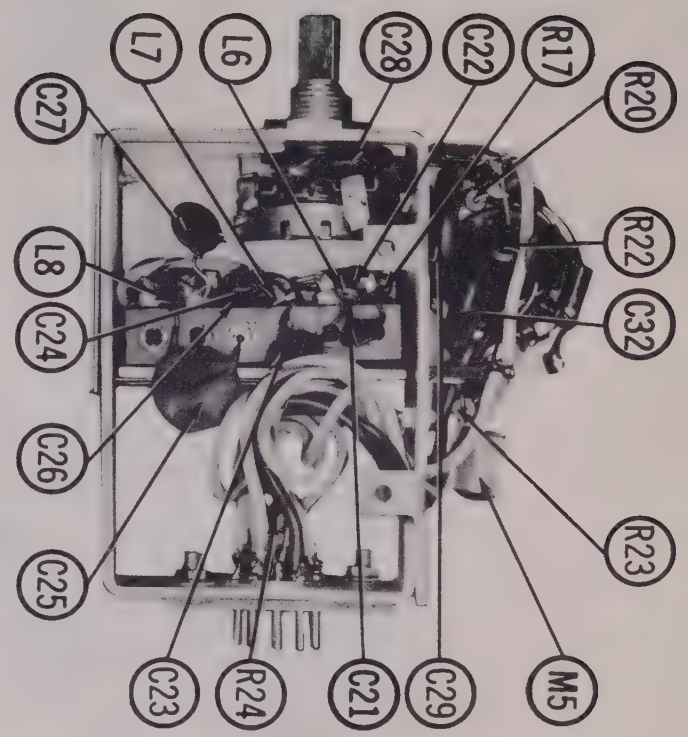
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	10 1000V NPO 10%				C10Q10C	CCTO-100	CNO-410	10TCC-Q10
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-120	5HK-D10
C8	820 10%		DI-820	DD-821	5R5T82	CCD-821	GP382	10TS-T82
C9	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C10	10 N220 10%					*		10TCR-Q10
C11	10 N220 10%					*		10TCR-Q10
C12	470 10%		DI-470	DD-471	5R5T47	CCD-221	GP347	10TS-T47
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	470 10%	Note 1	DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C15	220 10%	(680) †	DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C18	180 N150 10%					*		
C19	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C20	3000 10%		DI-3000		PM6D3	CCD-302	JL-233	10TS-D30
C21	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82
C22	5000 10%		DI-5000		1R5D5	CCD-502	JL-250	10TS-D50
C23	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C24	6800 10%		DI-6800		1DR5D68	CCD-682		10TS-D68
C25	13500 25%		DI-10000			CCD-103		10TS-S10
C26	6800 10%		DI-6800		1DR5D68	CCD-682		10TS-D68
C27	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C28	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C29	50000		BPD-05	DD-503	H-05S5	IDP-2-503	GP150	5HK-S5
C30	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C31	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C32	100000 75V			DDA-104	H-05P1	IDP-2-104	TA-010	TG-P10
C33	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C34	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	10 1000V NPO 10%				C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C36	330 5%		1469-00033		22R5T33	CM-19B-331J		
C37	7-45 N500						ST-557-N	
C38	100 NPO 5%		NPO-DI 100	DTZ-100	C10T1C	CCTO-101	CNO-310	10TCC-T10
C39	10000 1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C40	4-30 N500						ST-554-N	
C41	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-611	6TM-P10
C42	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C43	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C45	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C46	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C47	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C48	1500		EF-0015			CCF-152	FC5215	

† Alternate Value.
Note 1. Not used in some versions.

SOUELCH UNIT



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	RCA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	150K	½	8439880-1	B-44	A47-150K-S	Q13-128	U42	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On
R2A	50K	½	B-1802	B-31	A47-50K-S	Q11-123	U35	Squelch
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No	WORKMAN TV PART No.	REMARKS			IRC PART No	WORKMAN TV PART No	REMARKS
R3	3.3meg				R20	100K			
R4	10K				R21	10meg			
R5	47K				R22	220K			
R6	47K				R23	12K			
R7	22K				R24	47K			
R8	2.2meg			Note 1	R25	470K			
R9	47Ω				R26	470Ω 1W			
R10	47K				R27	100Ω			
R11	12K				R28	560K			
R12	820K				R29	47K			
R13	300K				R30	6800Ω			
R14	8.2meg				R31	680Ω 4W			
R15	2.2meg				R32	470K			
R16	100K				R33	6.8Ω 2W			
R17	47K				R34	47Ω			
R18	10meg				R35	560K			
R19	220K								

Note 1. 12 volt versions below serial #7041 and 6 volt versions below serial #595321 use 1meg.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		RCA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant. Loading						
L2	Ant.						
L3	RF Choke (100uh)		TV-194	6112	RTC-8574	T305	
L4	Detector						
L5	RF Choke (1MH)		BC-513	4652	RTC-8532	T873	
L6	RF Choke (60MH)		BC-511	693		T948	
L7	RF Choke (60MH)		BC-511	693		T948	
L8	RF Choke (60MH)		BC-511	693		T948	
L9	Oscillator						
L10	RF Choke (100uh)		TV-194	6112	RTC-8574	T305	
L11	Hash Choke (27uh)		BC-537	5220	RTC-9182	T980	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	RCA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V Ⓐ .37A (AC only) 6.3VCT Ⓐ 2.5A	120V Ⓐ .190A AC	6.3V Ⓐ 1.8A (AC only)	C-8702756					

TRANSFORMER (MIC.)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	RCA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	1	25	C-8702753		A-4748			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	RCA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	15K CT	3-4Ω	C-8702754	A-2900	A-3856	24S04	S-51X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	RCA PART No.	QUAM PART No.	
SP1	2½"	PM	3-4Ω	8702750-1	25A07	Used For Mic. and Speaker

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				RCA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	6.3	115%		5301	1001	5301	
	Interrupter	12.6	115%		6301	G1601	6301	

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	RCA PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M2	.040A	♦	1N1763 ♦	65A ♦	SR200 ♦	♦ Selenium Type
M3	.040A	♦	1N1763 ♦	65A ♦	SR200 ♦	♦ Silicon Type

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			RCA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M4	2" Length #26 Wire							
	3AG	10A ① 250V			313010 (3AG 10A 250V)		AGC 10	
	3AG	5A ② 250V			313005 (3AG 5A 250V)		AGC 5	

① Used in 6 Volt versions.
② Used in 12 Volt versions.

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		RCA PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M5			6GD1			Dual Selenium

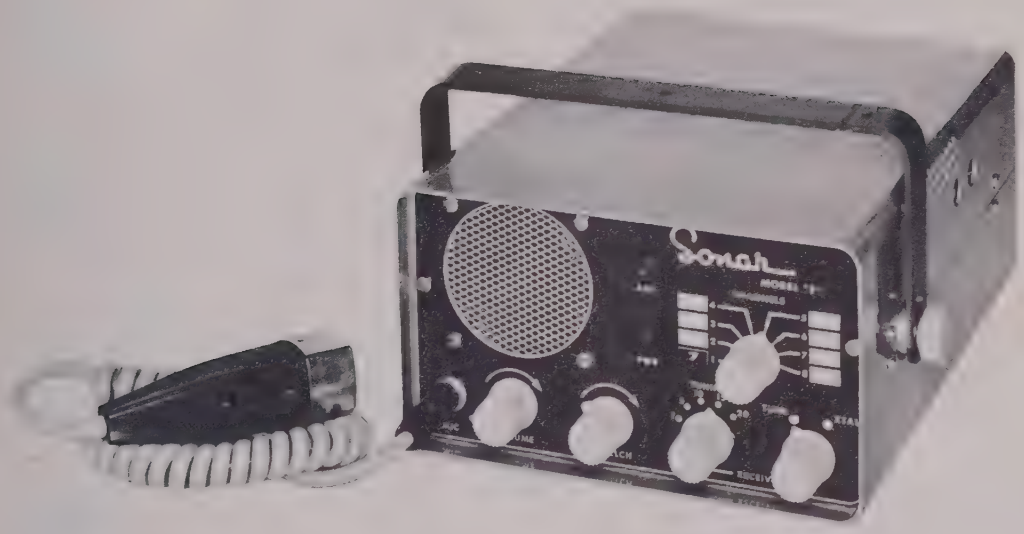
MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
M6	Switch		Push-to-talk (DPDT Slide Type)
M7	Crystal		Order By Desired Frequency
M8	Relay		Specify 6 or 12 Volt Unit

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



SONAR
MODEL E

TRADE NAME	Sonar Model E
MANUFACTURER	Sonar Radio Corp., 3050 W. 21st Street, Brooklyn 24, N. Y.
TYPE SET	AC-Battery Operated 9 Tube Citizens' Band Transmitter-Receiver
POWER SUPPLY	110-120 Volts AC (or) 6 Volt Storage Battery (or) 12 Volt Storage Battery
RATING	50 Watts, .48 Amp. @117 Volts AC (or) 4 Amp. @12.6 Volts DC (or) 8 Amp. @6.3 Volts DC
TUNING RANGE	Any 8 of Citizens' Band Channels 1 Thru 22 (Receiver May be Continuously Tuned Thru Band)

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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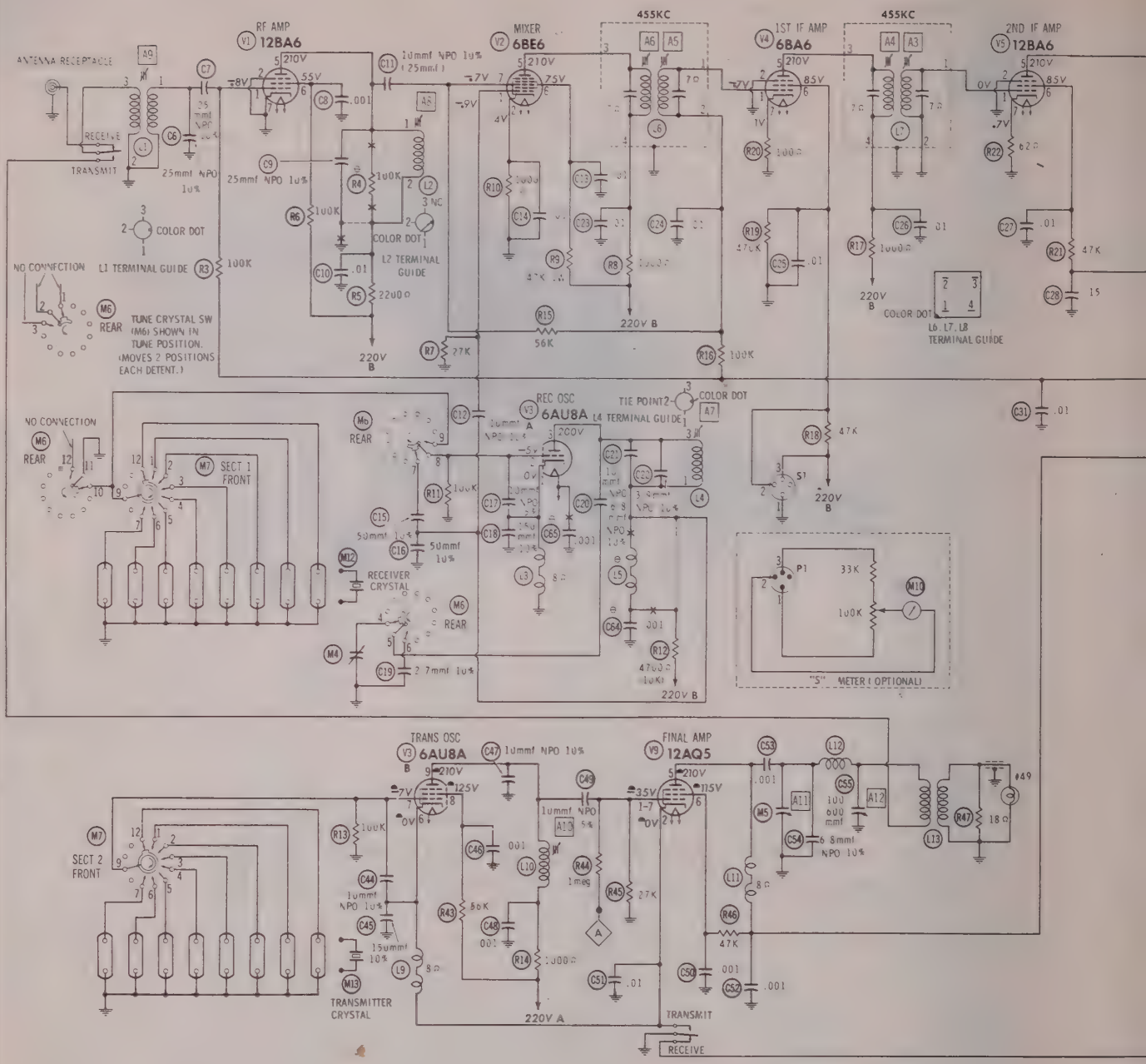

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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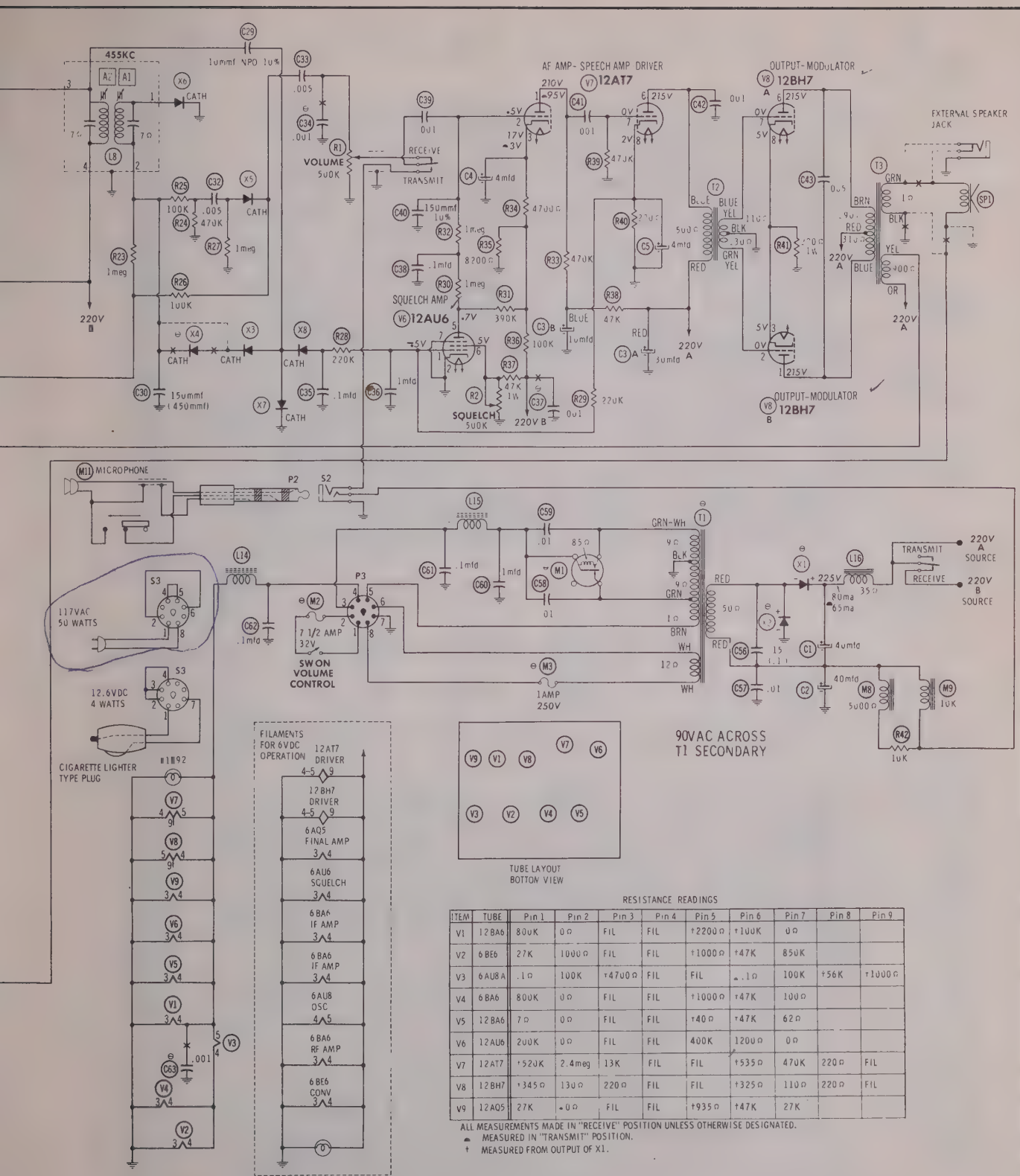
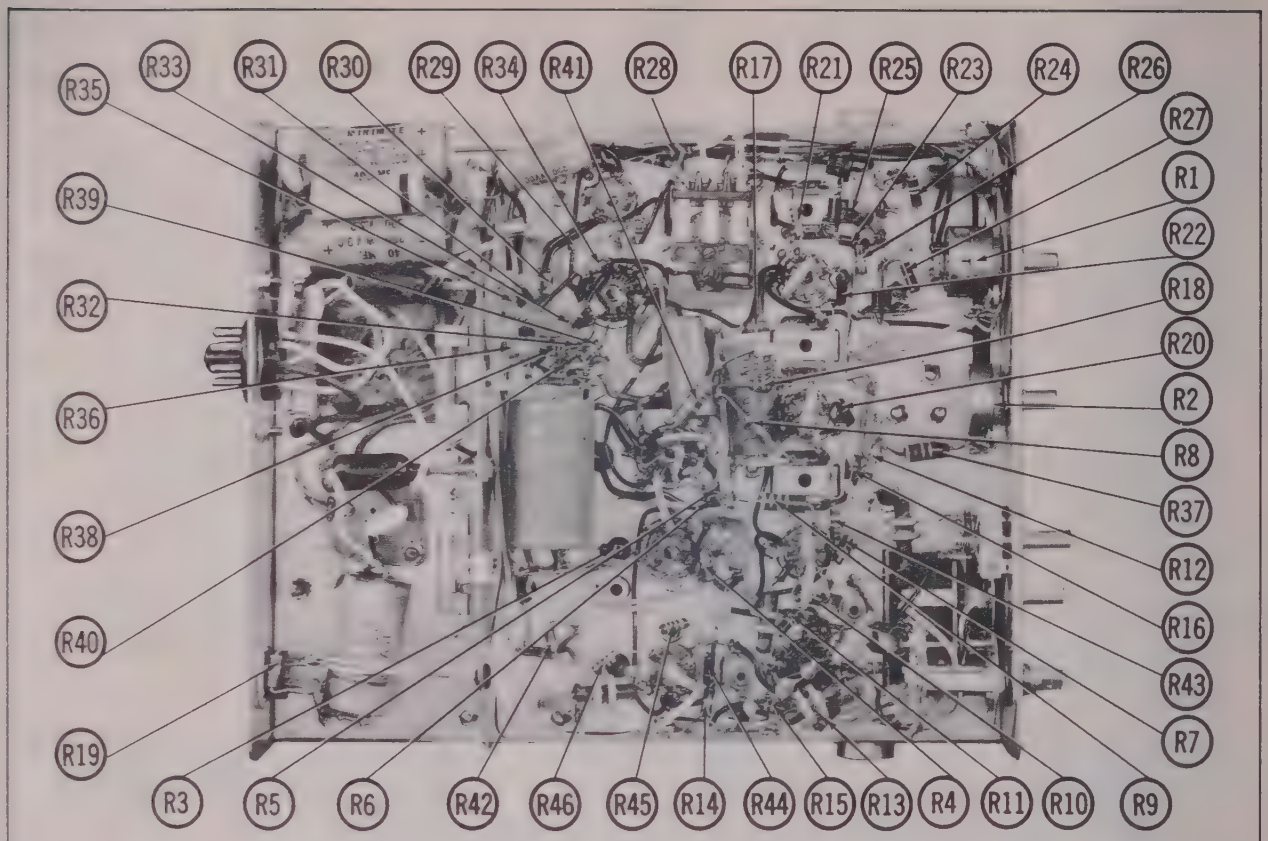


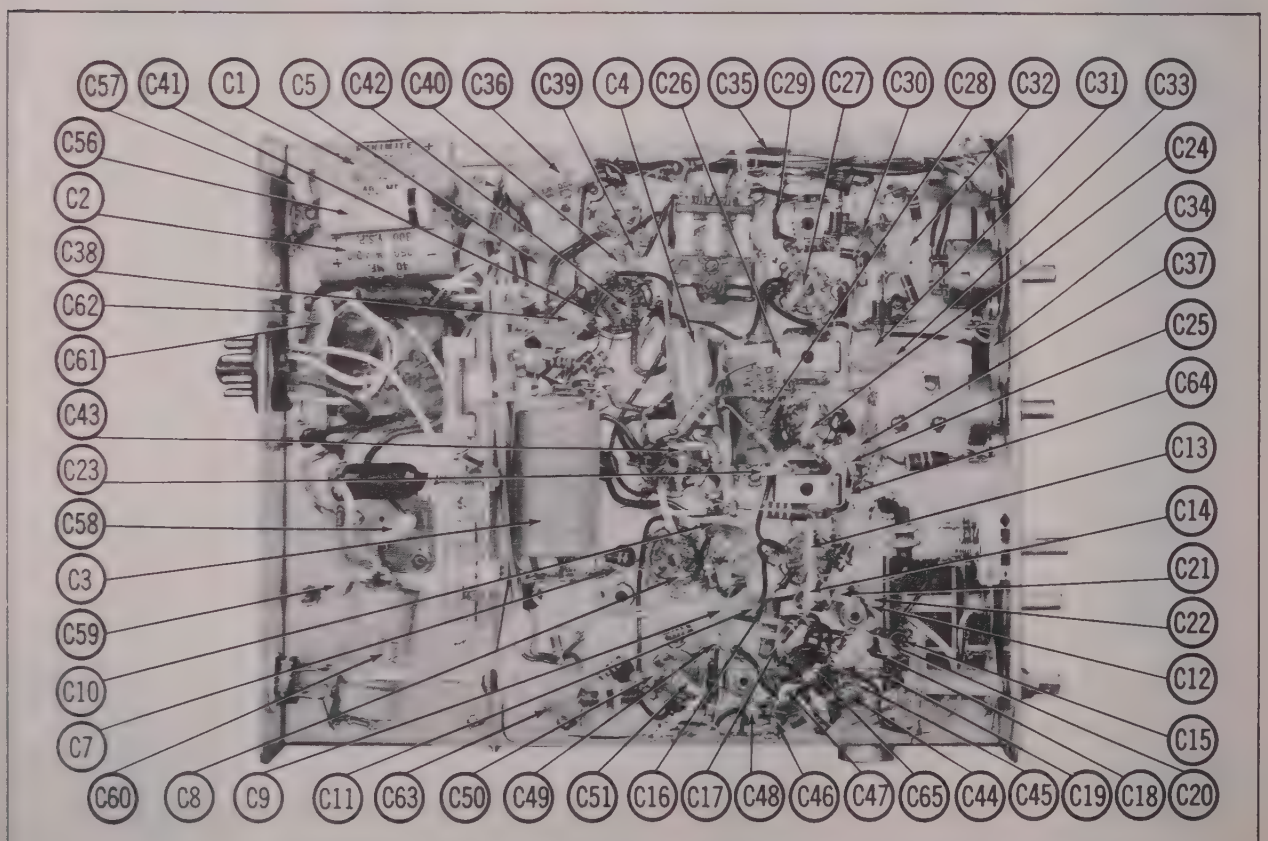
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	800K	0Ω	FIL	FIL	†2200Ω	†100K	0Ω		
V2	6BE6	27K	1000Ω	FIL	FIL	†1000Ω	†47K	850K		
V3	6AU8A	.1Ω	100K	†4700Ω	FIL	FIL	▲.1Ω	100K	†56K	†1000Ω
V4	6BA6	800K	0Ω	FIL	FIL	†1000Ω	†47K	100Ω		
V5	12BA6	7Ω	0Ω	FIL	FIL	†40Ω	†47K	62Ω		
V6	12AU6	200K	0Ω	FIL	FIL	400K	1200Ω	0Ω		
V7	12AT7	†520K	2.4meg	13K	FIL	FIL	†535Ω	470K	220Ω	FIL
V8	12BH7	†345Ω	130Ω	220Ω	FIL	FIL	†325Ω	110Ω	220Ω	FIL
V9	12AQ5	27K	▲0Ω	FIL	FIL	†935Ω	†47K	27K		

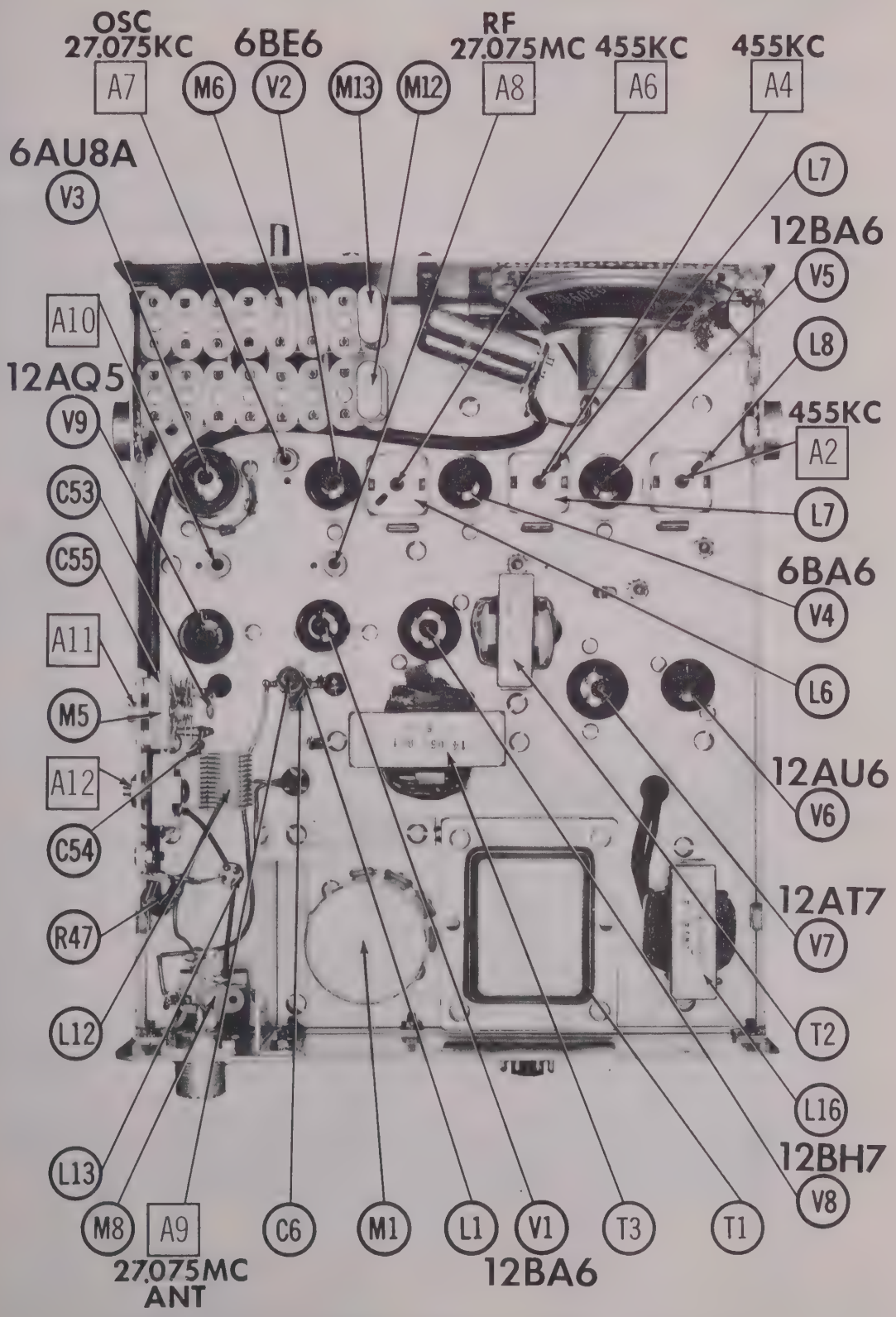
ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "TRANSMIT" POSITION.
† MEASURED FROM OUTPUT OF X1.



CHASSIS BOTTOM VIEW — RESISTOR IDENT.



CHASSIS BOTTOM VIEW — CAPACITOR IDENT.



CHASSIS — TOP VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools:

A1 thru A6.....	GENERAL CEMENT #5097, 8727 WALSCO #2515
A7 thru A10.....	GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545
All.....	GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089 WALSCO #2512, 2525, 2528
A12.....	GENERAL CEMENT #8721, 8722 WALSCO #2519

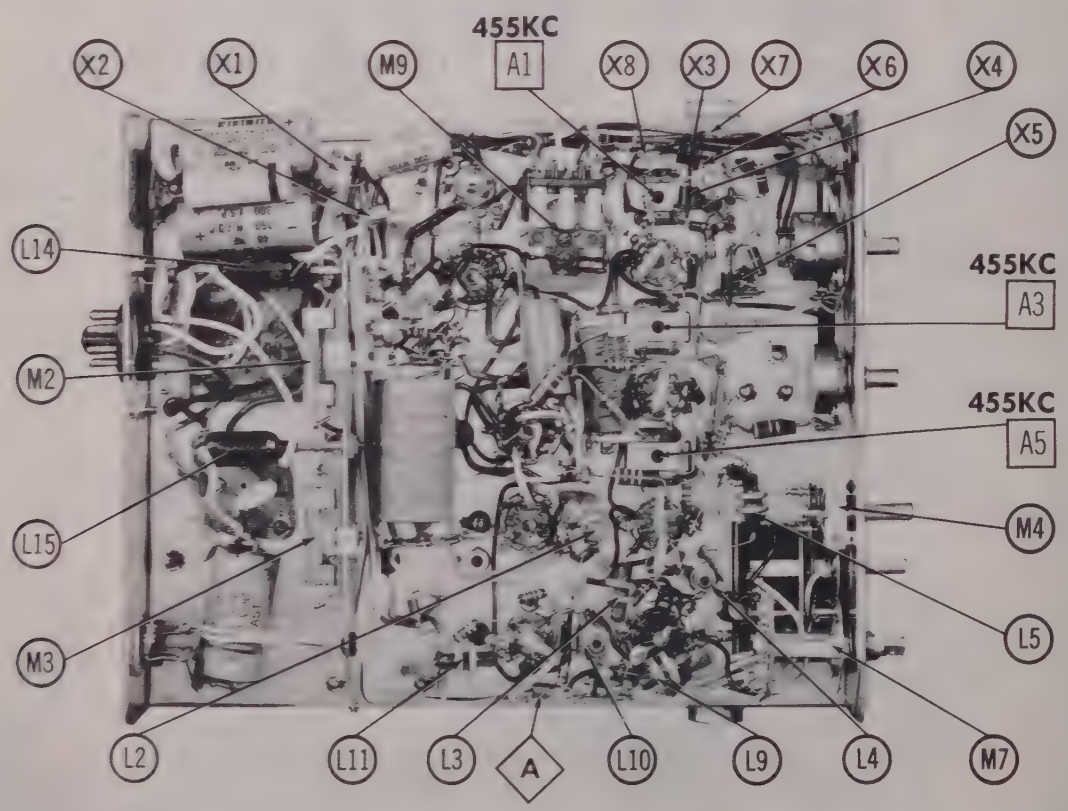
RECEIVER ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Mixer. Low side to chassis.	455KC (400% Mod.)	Point of non-interference.	Across voice coil.	A1, A2, A3, A4 A5, A6	Adjust for maximum output.
2.	Radiate signal into antenna thru a wire loop.	27.075MC	(Tune) Channel 10	"	A7, A8, A9	"

TRANSMITTER ALIGNMENT

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
3.	Connect a 75Ω dummy load to antenna terminal. Allow 10 minutes for warm-up.	DC probe of VTVM connected to point (A). Common to chassis.	A10	Press transmit button and adjust A10 for maximum deflection on VTVM then back slug out of coil for approximately 5 to 10% drop in Voltage reading. Release transmit button and depress several times to make certain oscillator is stable.
4.	"	Use Antenna indicator lamp on front panel.	A11, A12	Adjust for maximum brilliance. Repeat several times.



CHASSIS BOTTOM VIEW-ALIGN., INDUCTOR & MISC IDENT

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Shielded Antenna Lead	Use BELDEN No.	8214 Lowest Loss (RG-8/U Type) 8237 Low Loss (RG-8/U) 8240 (Solid) Miniature (RG-58/U) 8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable	Use BELDEN No.	8497 3 Conductor - 1 Shielded for Press-to-Talk (Neoprene) 8496 3 Conductor - 1 Shielded for Press-to-Talk (Vinyl)
Ignition Noise Suppression	Use BELDEN No.	7300-Series Spark-Plug Sets
Bonding Strap	Use BELDEN No.	8661 (3/8 In.)

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12BA6	V6	Squelch Amp.	12AU6
V2	Mixer	6BE6	V7	AF Amp. -Speech Amp. - Driver	12AT7
V3	Rec. Osc. -Trans. Osc.	6AU8A			
V4	1st IF Amplifier	6BA6	V8	Output-Modulator	12BH7
V5	2nd IF Amplifier	12BA6	V9	Final Amplifier	12AQ5

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES		NOTES
			RCA PART No.	SARKES TARZIAN PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
X1	.080A	19-040-002	1N1763	40H			* Not used in some versions.
X2	.080A	19-040-002	1N1763	40H			
X3		19-040-001	1N1763	2F4			
X4		19-040-001*	1N1763	2F4			
X5		19-040-001	1N1763	2F4			
X6		19-050-001				1N295	
X7		19-050-001				1N295	
X8		19-050-001				1N295	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SONAR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	40	250	06-130-003	PRS1580	BH4025	QT1-14	TC58	TD-40-250	TVA-1511
C2	40	350	06-130-003	PRS1580	BR4025	QT1-14	TC58	TD-40-250	TVA-1511
C3A	30	350	06-230-001	PRS2410	BBRD2245	QT2-4	TCD65	TDLD-30	TVA-2730
B	10	350							
C4	4	10	06-130-002	PRS1400	BBR4-150	QT1-2	TT50X4	TD-4-25	TE-1123
C5	4	10	06-130-002	PRS1400	BBR4-150	QT1-2	TT50X4	TD-4-25	TE-1123

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-270	CNO-425	10TCC-Q25
C7	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-270	CNO-425	10TCC-Q25
C8	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-270	CNO-425	10TCC-Q25
C10	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	10 NPO 10%	(25) †	NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C12	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C14	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C15	50 10%		1469-00005	TCZ-50	22R5Q5	CM-19B-500K	MCB255	MS-450
C16	50 10%		1469-00005	TCZ-50	22R5Q5	CM-19B-500K	MCB255	MS-450
C17	10 NPO 5%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C18	150 10%		DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15
C19	2.7 10%		NPO-SI 3.0		C10V3C			10TCC-V27
C20	6.8 NPO 10%		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C21	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C22	3.9 NPO 10%				C10V4C			10TCC-V39
C23	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	.15 200V		P288N-15		CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C29	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C30	150 10%	(450) †	DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15
C31	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C33	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C34	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	.1mfd 100V				DPMS2P1	1DP-2-104	BT-010	TH-P10
C36	1mfd 200V		P288N-1.0		CUB2W1		GEM-21	2TM-M1
C37	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C38	.1mfd 100V				DPMS2P1	1DP-2-104	BT-010	TH-P10
C39	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C40	150 10%		DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15
C41	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C42	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C43	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C44	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C45	150 10%		DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15
C46	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C47	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C48	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C49	10 NPO 5%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C50	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C51	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C52	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C53	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C54	6.8 NPO 10%		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C55	100-600	#09-210-001 (.1) †						
C56	.15 400V		P488N-15		CUB4P15	4DP-4-154	GEM-4015	4TM-P15
C57	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C58	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C59	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C60	1mfd 50V		P288N-1.0		CUB2W1	1DP-5-105	GEM-21	2TM-M1
C61	.1mfd 100V				DPMS2P1	1DP-2-104	BT-010	TH-P10
C62	.1mfd 100V				DPMS2P1	1DP-2-104	BT-010	TH-P10
C63	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C64	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C65	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

† Alternate Value.
# Sonar Part Number.
Note 1. Not used in some versions.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA SONAR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume, & Switch	500K	03-504-001	B-60-S, or (AB-60, AK-21, KR-2)	A47-500K-Z/RS-2, SWE-20	Q13-133, 76-2, or (BUI, CF25, SSI, WF) *	U48, US-27, or (UA55A, SF1000, US42)
R2	Squelch	500K	03-504-003	B-60, or (AB-60, AK-21)	A47-500K-Z/RS-2	Q13-133, or (BUI, CF25, SSI, DC1) *	U48, or (UA55A, SL3500, SF1000)

* "SNAPTROL"

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS
R3	100K			
R4	100K			Note 1
R5	2200Ω			
R6	100K			
R7	27K			
R8	1000Ω			
R9	47K 1W			
R10	1000Ω			
R11	100K			
R12	4700Ω			(10K) *
R13	100K			
R14	1000Ω			
R15	56K			
R16	100K			
R17	1000Ω			
R18	47K			
R19	470K			
R20	100Ω			
R21	47K			
R22	62Ω			
R23	1meg			
R24	470K			
R25	100K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No	REMARKS
R26	100K			
R27	1meg			
R28	220K			
R29	220K			
R30	1meg			
R31	390K			
R32	1meg			
R33	470K			
R34	4700Ω			
R35	8200Ω			
R36	100K			
R37	47K 1W			
R38	47K			
R39	470K			
R40	220Ω			
R41	220Ω 1W			
R42	10K			
R43	56K			
R44	1meg			
R45	27K			
R46	47K			
R47	18Ω			

Note 1. Not used in some versions.
* Alternate Value

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SONAR PART. No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	
L1	Ant.	22-030-001	SW-609	6250	RTC-8568	T232A	① Not used in some versions
L2	RF	22-050-001	SW-608	6171-A	RTC-8609	T219	
L3	RF Choke (250uh)	22-060-001	TV-185	6181	RTC-8598	T315	
L4	Osc. Plate	22-040-001	SW-608	6171-A	RTC-8609	T216	
L5	RF Choke (250uh)	22-060-001①	TV-185	6181	RTC-8598	T315	
L6	1st IF	22-010-002	BC-352	12-C1	RTC-8632	T607	
L7	2nd IF	22-010-002	BC-353	12-C2	RTC-8633	T608	
L8	3rd IF	22-010-002	BC-353	12-C2	RTC-8633	T608	
L9	RF Choke (250uh)	22-060-001	TV-185	6181	RTC-8598	T315	
L10	Osc. Plate	22-040-002	SW-608	6171-A	RTC-8609	T216	
L11	RF Choke (250uh)	22-060-001	TV-185	6181	RTC-8598	T315	
L12	Final	22-070-001					
L13	Ant. Loading	22-110-001					
L14	Fil. Choke (10uh)	22-100-003	BC-537	5220	RTC-9182	T963	
L15	Hash Choke (10uh)	22-100-003	BC-537	5220	RTC-9182	T963	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	SONAR PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L16	.080A	35Ω	1 HY	14-070-001					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	SONAR PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	12VCT@ 2.1A or 117V@ .48A	90V@ .190A AC		14-010-002 ①					① For 12VDC & 117VAC Part #14-010-001 used for 6VDC & 117VAC

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SONAR PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	1	1	14-020-001					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SONAR PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	16K CT	14-16Ω	14-050-001					
		SEC. 2						
		16K						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SONAR PART No.	QUAM PART No.	
SP1	3"	PM	14-16Ω	36-043-001		

VIBRATOR

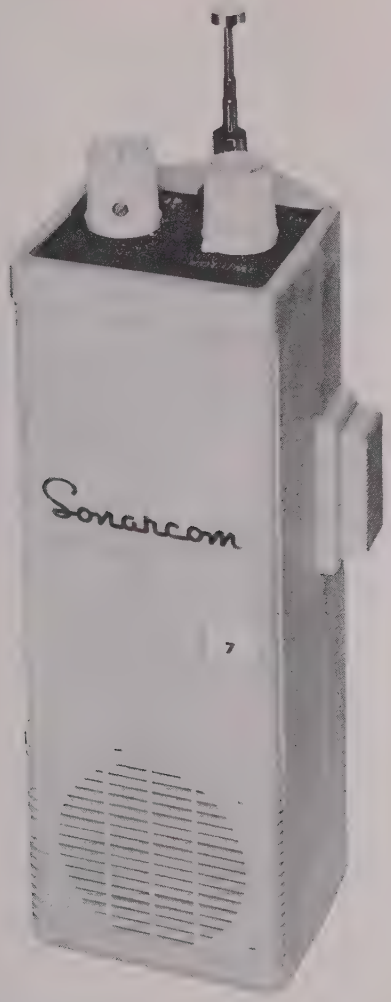
ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				SONAR PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6 VDC	115∿	29-030-001	6301	G1601	6301	12 Volt Versions
	Interrupter	6.3 VDC	115∿	29-030-002	5301	1601	5301	6 Volt Versions

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			SONAR PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	7½A 32V	42-010-008 (6VDC Operation)		31107.5 (3AG 7½A 32V)	357001	AGC 7½	4405
	3AG	10A 32V			311010 (3AG 10A 32V)	357001	AGC 10	4405
	3AG	6A 32V	42-010-009 (12VDC Operation)		311006 (3AG 6A 32V)	357001	AGC 6	4405
M3	3AG	1A 250V	42-010-006 (AC Operation)		312001 (3AG 1A 250V)	357001	AGC 1	4405
	3AG	2A 250V			312002 (3AG 2A 250V)	357001	AGC 2	4405

MISCELLANEOUS

ITEM No.	PART NAME	SONAR PART No.	NOTES
M4	Variable Cap.	08-100-002	Receiver Oscillator
M5	Variable Cap.	08-150-003	Transmitter Output
M6	Switch	10-030-001	Tune-Crystal (Manual-Crystal Tuning, Rotary Type)
M7	Switch	10-030-002	Channel Selector (Rotary Wafer, 8 Position)
M8	Relay	16-030-001	Antenna (SPDT)
M9	Relay	16-010-001	Change-over (SPDT)
M10	"S" Meter	32-010-002	
M11	Microphone	43-010-001	Includes Plug
M12	Crystal		Receive (Order by Channel & Freq. Desired)
M13	Crystal		Transmit (Order by Channel & Freq. Desired)



NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

SONARCOM
MODEL CBP

TRADE NAME	Sonarcom Model CBP		
MANUFACTURER	Sonar Radio Corp., 3050 W. 21st Street, Brooklyn 24, N. Y.		
TYPE SET	Battery Operated Transistorized Portable Citizens Band Transmitter-Receiver		
POWER SUPPLY	12 Volts DC	RATING	30MA @ 12 Volts DC (Transmit) 12MA @ 12 Volts DC (Receive)
TUNING RANGE	Any one of Citizens Band Channels 1 thru 22 (Receiver may be continuously tuned)		

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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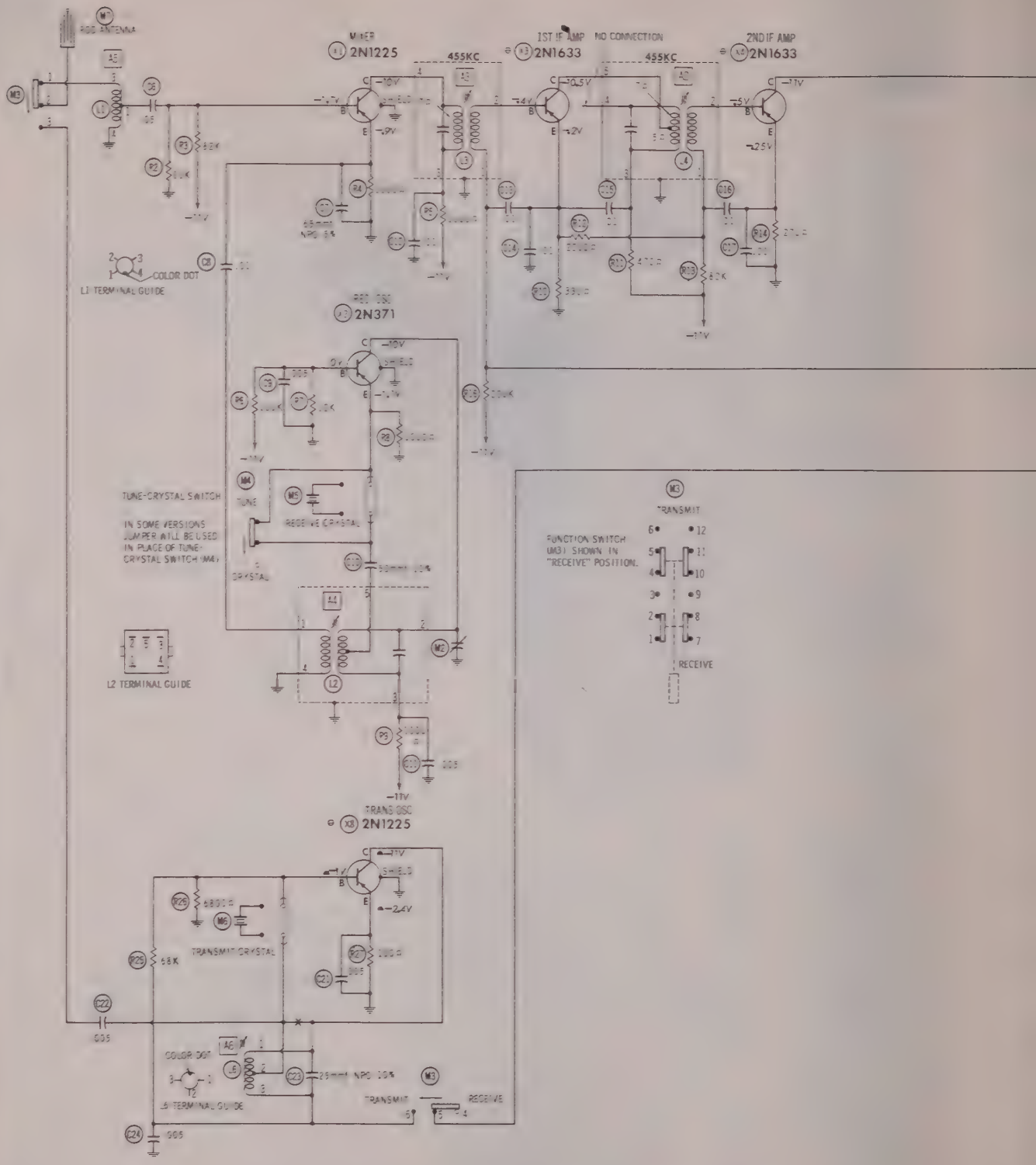

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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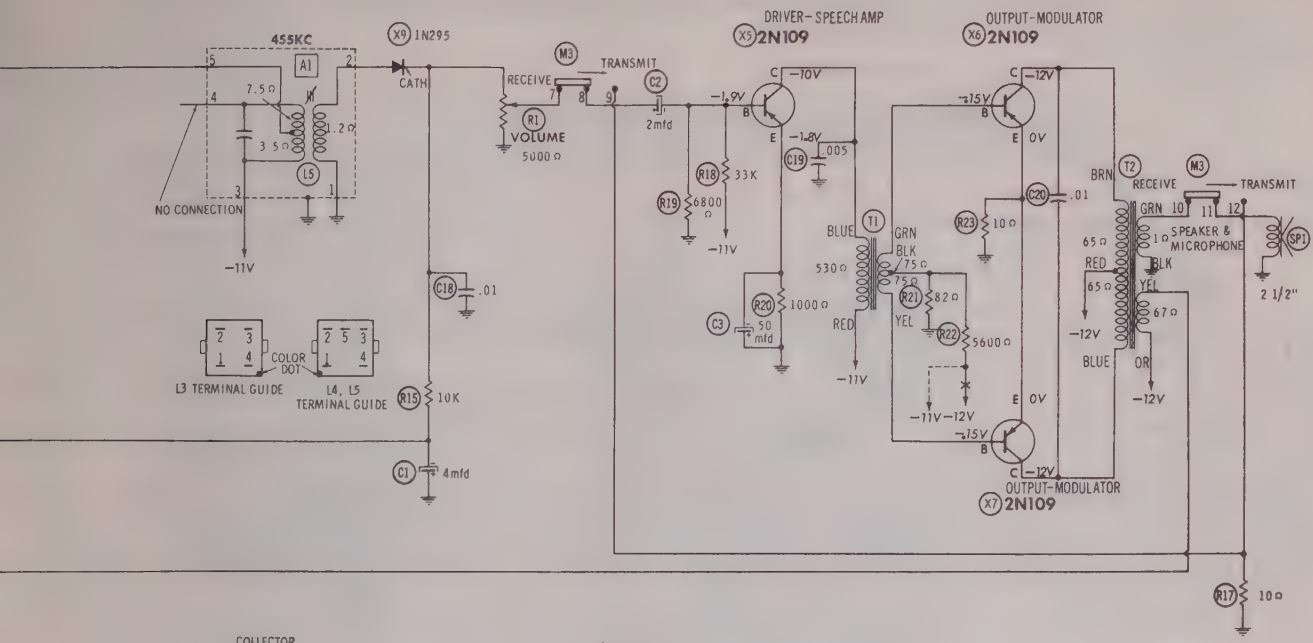
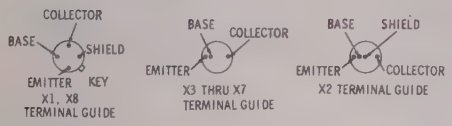
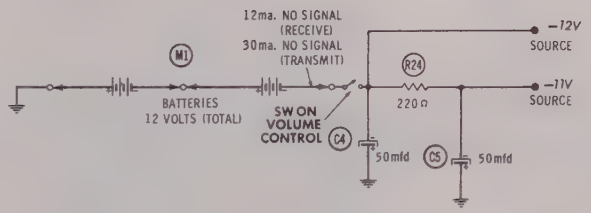




RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N1225	10K	1000Ω	†1200Ω
X2	2N371	12K	1000Ω	†1200Ω
X3	2N1633	10K	330Ω	†700Ω
X4	2N1633	2500Ω	270Ω	†220Ω
X5	2N109	6800Ω	1000Ω	†750Ω
X6	2N109	15Ω	10Ω	†65Ω
X7	2N109	15Ω	10Ω	†65Ω
X8	2N1225	▲6800Ω	100Ω	▲†67Ω

TRANSISTORS REMOVED FOR RESISTANCE MEASUREMENTS.
ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "TRANSMIT" POSITION.
† MEASURED FROM NEGATIVE BATTERY CONNECTOR.



TRANSMIT-RECEIVE SWITCH (M3) SHOWN IN RECEIVE POSITION.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

SONARCOM MODEL CBP

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT
Use only enough generator output to provide a usable indication. Suggested Alignment Tools: A1, A2, A3.....GENERAL CEMENT #5097, 8727 WALSCO #2515 A4, A5, A6..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440 WALSCO #2526, 2543, 2544, 2545

RECEIVER ALIGNMENT

Connect DC VTVM across Volume Control.

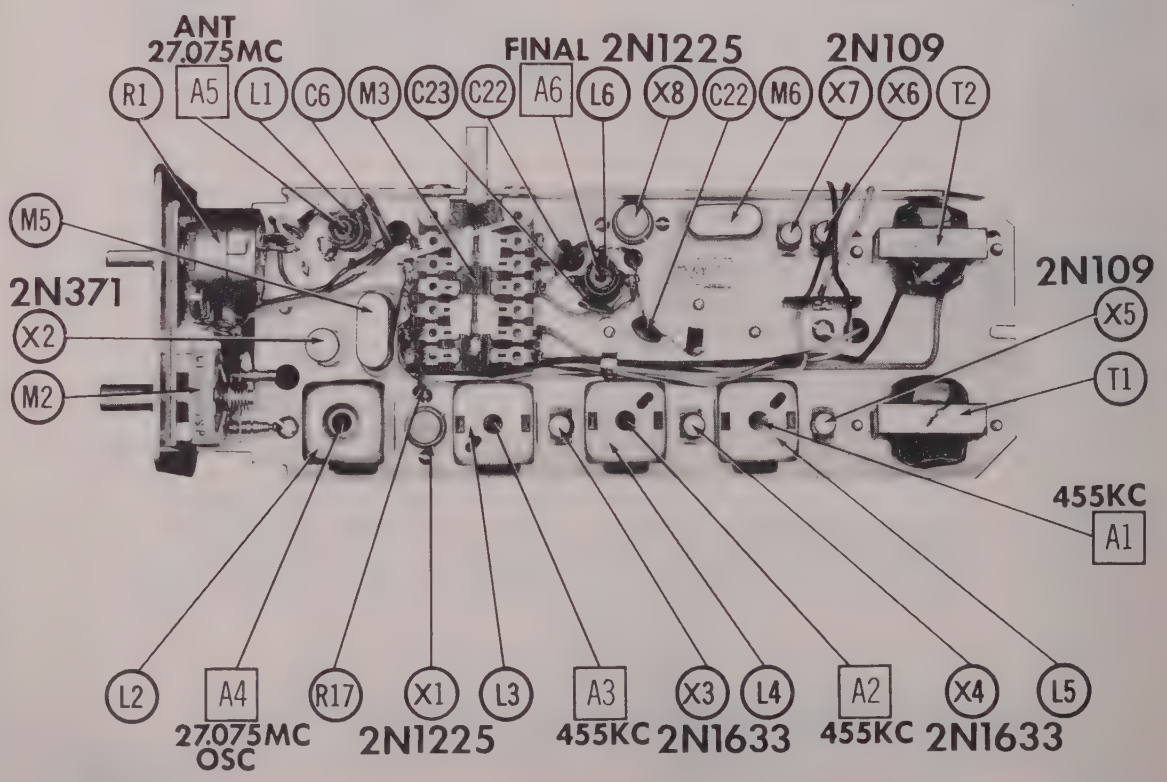
SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
Tune to 455KC. High side thru .01mfd to base of mixer, low side to chassis.	10	A1, A2, A3	Adjust for maximum deflection.
Tune to channel freq. and radiate signal in antenna.	10	A4, A5	Adjust for maximum deflection.

TRANSMITTER ALIGNMENT

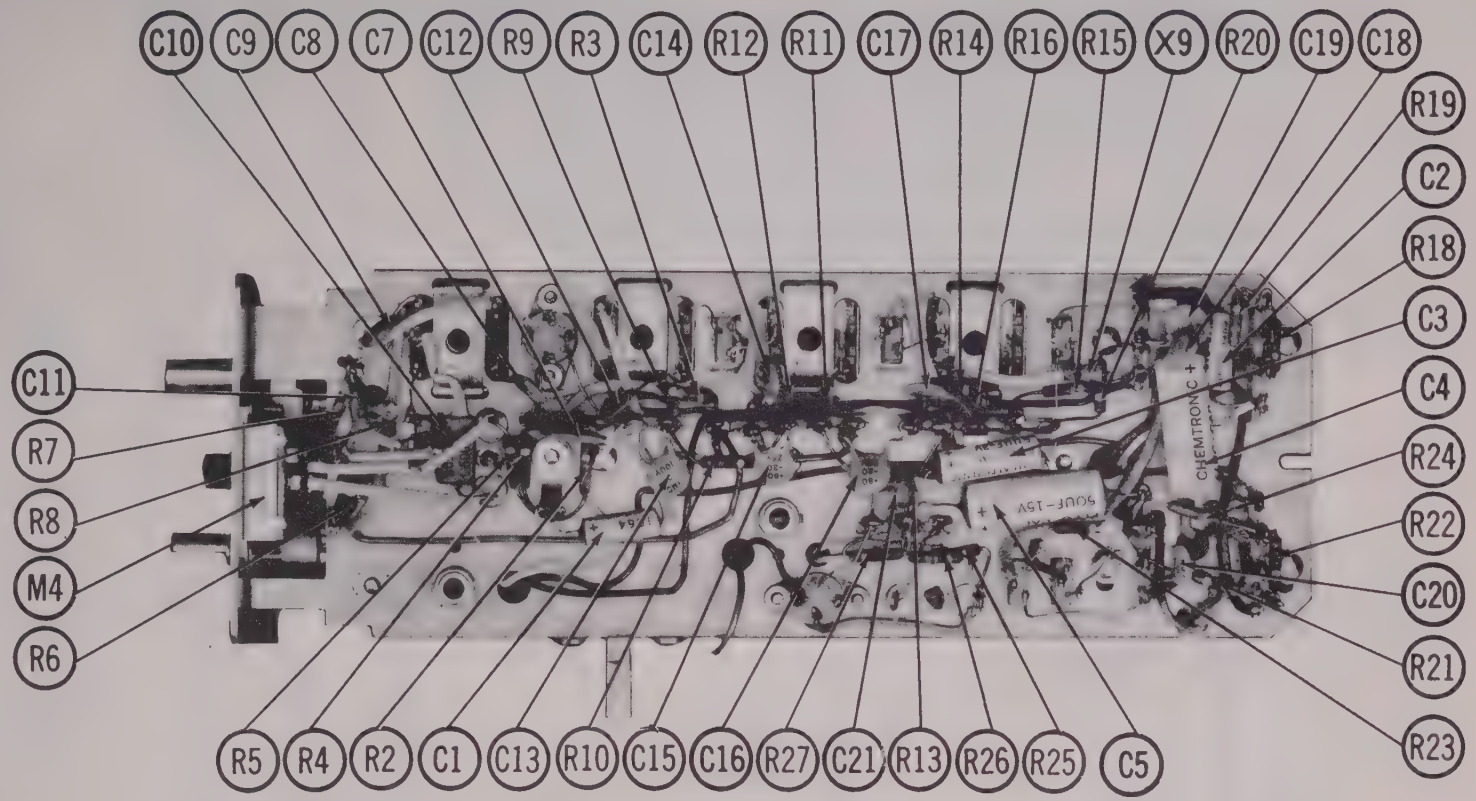
Output frequency should be checked by an accurately calibrated standard to be sure frequency is within .005%.

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
Extend whip antenna fully.	Field strength meter.	A6	Adjust for maximum output.



CHASSIS — TOP VIEW



CHASSIS — BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid 22AWG) 8524 (Stranded 22AWG) 8570 (Stranded 26AWG)	Available in 12 Colors

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: RAYTHEON PART No.	NOTES
X1	2N1225	Mixer	2N1179		PNP
X2	2N371	Rec. Osc.	2N371		PNP
X3	2N1633	1st IF Amplifier	2N1633		PNP
	2N373*	1st IF Amplifier			PNP
X4	2N1633	2nd IF Amplifier	2N1633		PNP
	2N373*	2nd IF Amplifier			PNP
X5	2N109	Driver-Speech Amp.	2N109	2N362	PNP
X6	2N109	Output-Modulator	2N109	2N362	PNP
X7	2N109	Output-Modulator	2N109	2N362	PNP
X8	2N1225	Trans. Osc.	2N1178		PNP
	2N1397*	Trans. Osc.			PNP * Alternate

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS: RCA PART No.	RECTIFIERS: SARKES TARZIAN PART No.	DIODES: RAYTHEON PART No.	NOTES
X9		42-302-295			1N295	Detector

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT.	SONARCOM PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	4	10	06-712-39	PTT37	NLW4-15	MT1-3	TT50X4	MLV5-12	TE-1123
C2	2	10	06-712-32	PTT35	NLW2-50	MT1-1	TT12X2	MLV2-12	TE-1121
C3	50	3	06-702-66	PTT12	NLW50-3	MT1-15	TT3X50	MLV50-3	TE-1058
C4	50	15	06-722-66	PTT72	NLW50-15	MT1-16	TT15X50	MLV50-15	TE-1160
C5	50	15	06-722-66	PTT72	NLW50-15	MT1-16	TT15X50	MLV50-15	TE-1160

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.05		BPD-05	DD-503			BT-150	TH-S50
C7	65 NPO 5%			TCZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C8	.01		BPD-01	DD-103	BYA10S1	CCD-103	BT-110	TH-S10
C9	.005		BPD-005	DD-502	BYA10D5	CCD-502	BT-250	TH-D50
C10	50 10%		1469-00005	TCZ-50	C10Q5C	CCTO-510	CNO-450	10TCC-Q50
C11	.005		BPD-005	DD-502	BYA10D5	CCD-502	BT-250	TH-D50
C12	.01		BPD-01	DD-103	BYA10S1	CCD-103	BT-110	TH-S10
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	BT-110	TH-S10
C14	.01		BPD-01	DD-103	BYA10S1	CCD-103	BT-110	TH-S10
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	BT-110	TH-S10
C16	.01		BPD-01	DD-103	BYA10S1	CCD-103	BT-110	TH-S10
C17	.01		BPD-01	DD-103	BYA10S1	CCD-103	BT-110	TH-S10
C18	.01		BPD-01	DD-103	BYA10S1	CCD-103	BT-110	TH-S10
C19	.005		BPD-005	DD-502	BYA10D5	CCD-502	BT-250	TH-D50
C20	.01		BPD-01	DD-103	BYA10S1	CCD-103	BT-110	TH-S10
C21	.005		BPD-005	DD-502	BYA10D5	CCD-502	BT-250	TH-D50
C22	.005		BPD-005	DD-502	BYA10D5	CCD-502	BT-250	TH-D50
C23	25 NPO 10%		NPO-DI 25	DTZ-25	C10Q25C	CCTO-270	CNO-425	10TCC-Q25
C24	.005		BPD-005	DD-502	BYA10D5	CCD-502	BT-250	TH-D50

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	SONARCOM PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	5000Ω	03-001-113	B-11, KR-1, or (AB-11, AK-7, KR-1)	A47-5000-S/ KS8-3, SWE12	Q13-114, 76-1	U12, US-26

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: WORKMAN PART No.	REPLACEMENT DATA: REMARKS
R2	10K			
R3	82K			
R4	1000Ω			
R5	1000Ω			
R6	100K			
R7	12K			
R8	1000Ω			
R9	1000Ω			
R10	330Ω			
R11	470Ω			
R12	2200Ω			
R13	82K			
R14	270Ω			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: WORKMAN PART No.	REPLACEMENT DATA: REMARKS
R15	10K			
R16	220K			
R17	10Ω			
R18	33K			
R19	6800Ω			
R20	1000Ω			
R21	82Ω			
R22	5600Ω			
R23	10Ω			
R24	220Ω			
R25	68K			
R26	6800Ω			
R27	100Ω			

COILS (RF-IF)

ITEM No.	USE	SONARCOM PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	NOTES
L1	Ant.	22-196-501					
L2	Osc.	22-390-502					
L3	1st IF	14-211-004					
L4	2nd IF	14-221-005					
L5	3rd IF	14-231-006					
L6	Final	22-492-500					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO: PRI.	TURNS RATIO: SEC.	SONARCOM PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2	1	14-325-008					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC. 1	IMPEDANCE: SEC. 2	SONARCOM PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	1500Ω CT	6-8Ω	500Ω	14-335-007					

SPEAKER

ITEM No.	TYPE: SIZE	TYPE: FIELD	TYPE: V. C. IMP.	SONARCOM PART No.	QUAM PART No.	NOTES
SP1	2½"	PM	6-8Ω	36-220-503	25A07Z8	

BATTERIES

ITEM No.	VOLTAGE	SONARCOM PART No.	BURGESS "A"	BURGESS "B"	EVEREADY "A"	EVEREADY "B"	MALLORY "A"	MALLORY "B"	NOTES
M1	6V	*				2713*			* 2 Required

MISCELLANEOUS

ITEM No.	PART NAME	SONARCOM PART No.	NOTES
M2	Variable Cap.	08-210-250	Receiver Tuning (1-5mmf)
M3	Switch	09-324-508	Function Selector (Pushbutton Type)
M4	Switch		Tune-Crystal (SPDT Slide Type)
M5	Crystal		Receive (Order by Channel & Freq. Desired)
M6	Crystal		Transmit (Order by Channel & Freq. Desired)
M7	Antenna	21-116-507	

NOTICE

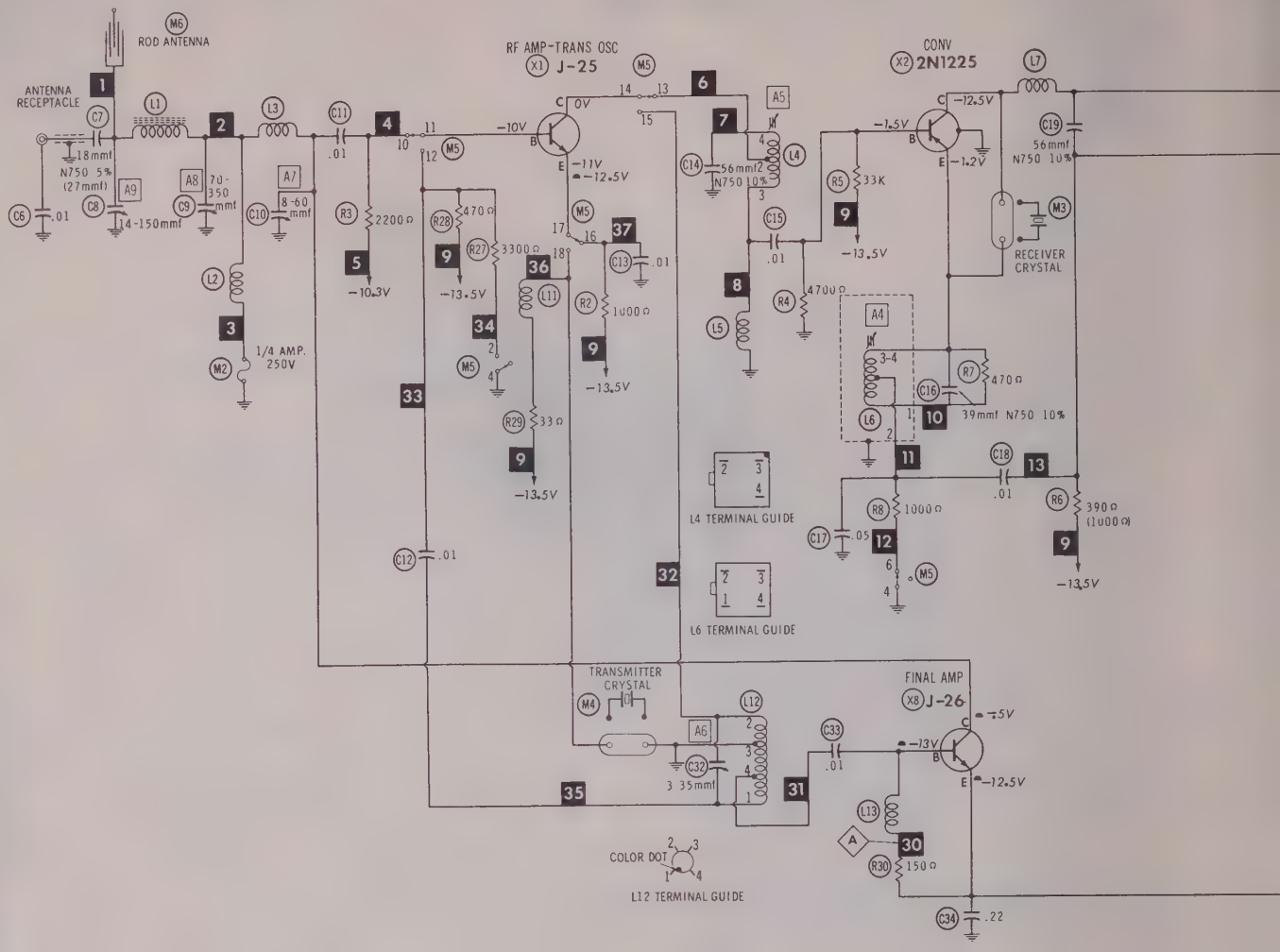
ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

SPOKESMAN
MODEL 700

TRADE NAME	Spokesman Model 700
MANUFACTURER	Ray Jefferson Inc., Subsidiary of Jetronic Industries Inc., Main & Cotton St., Philadelphia 27, Pa.
TYPE SET	8 Transistor Single Band Portable Citizens Band Transmitter-Receiver
POWER SUPPLY	13.5 Volts DC, Self Contained 12 Volts DC, Accessory Adapter Model 750 110 Volts DC, Accessory Adapter Model 760
RATING	10 MA @ 12 Volts DC (Receive), 180 MA @ 12 Volts DC (Transmit)
TUNING RANGE	Any One of Citizens Band Channels 1 thru 23

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



"TRANSMIT - RECEIVE PUSHBUTTON M5" SHOWN IN "RECEIVE" POSITION.

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
⏜ MEASURED IN "TRANSMIT" POSITION.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE™

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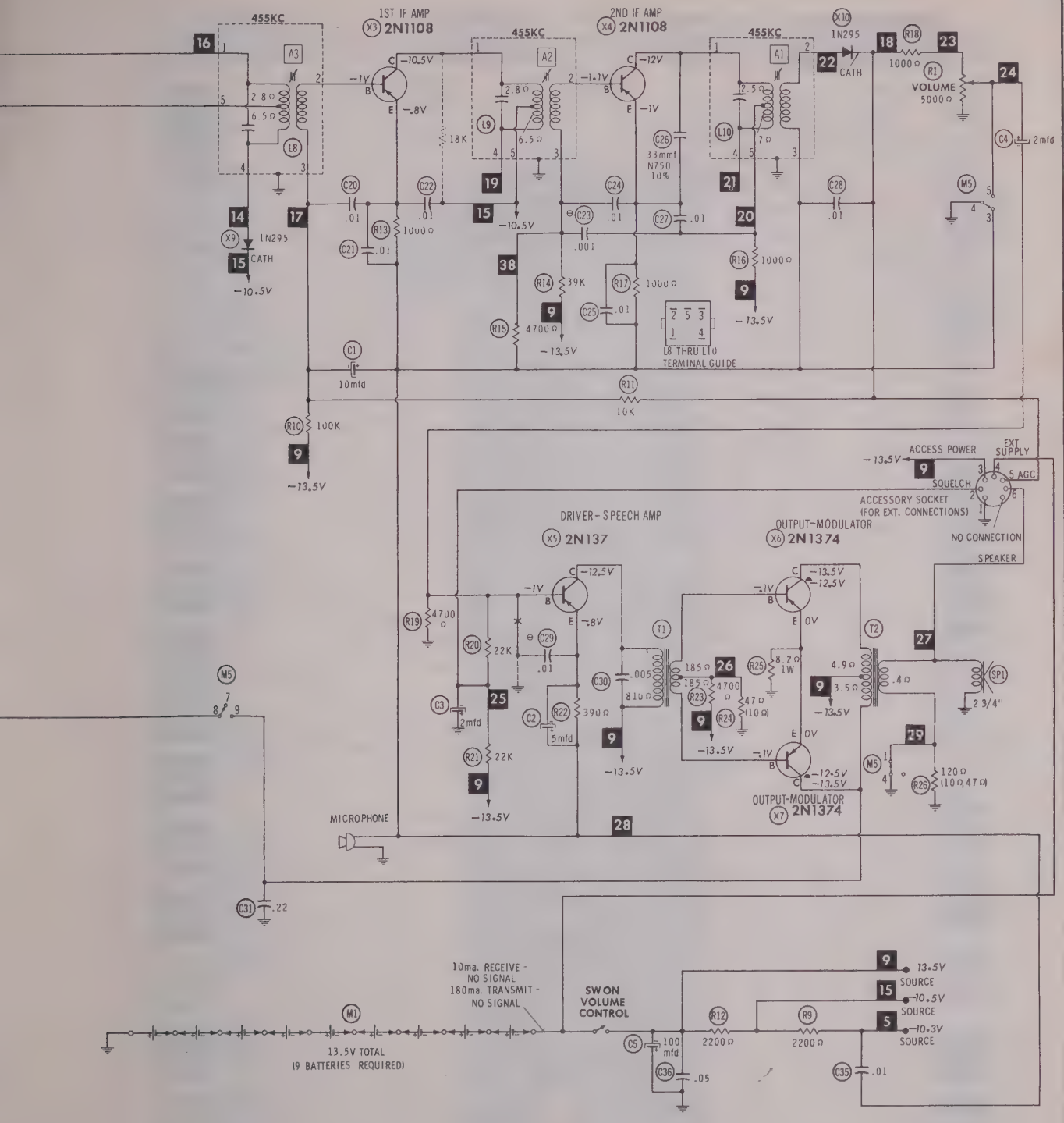
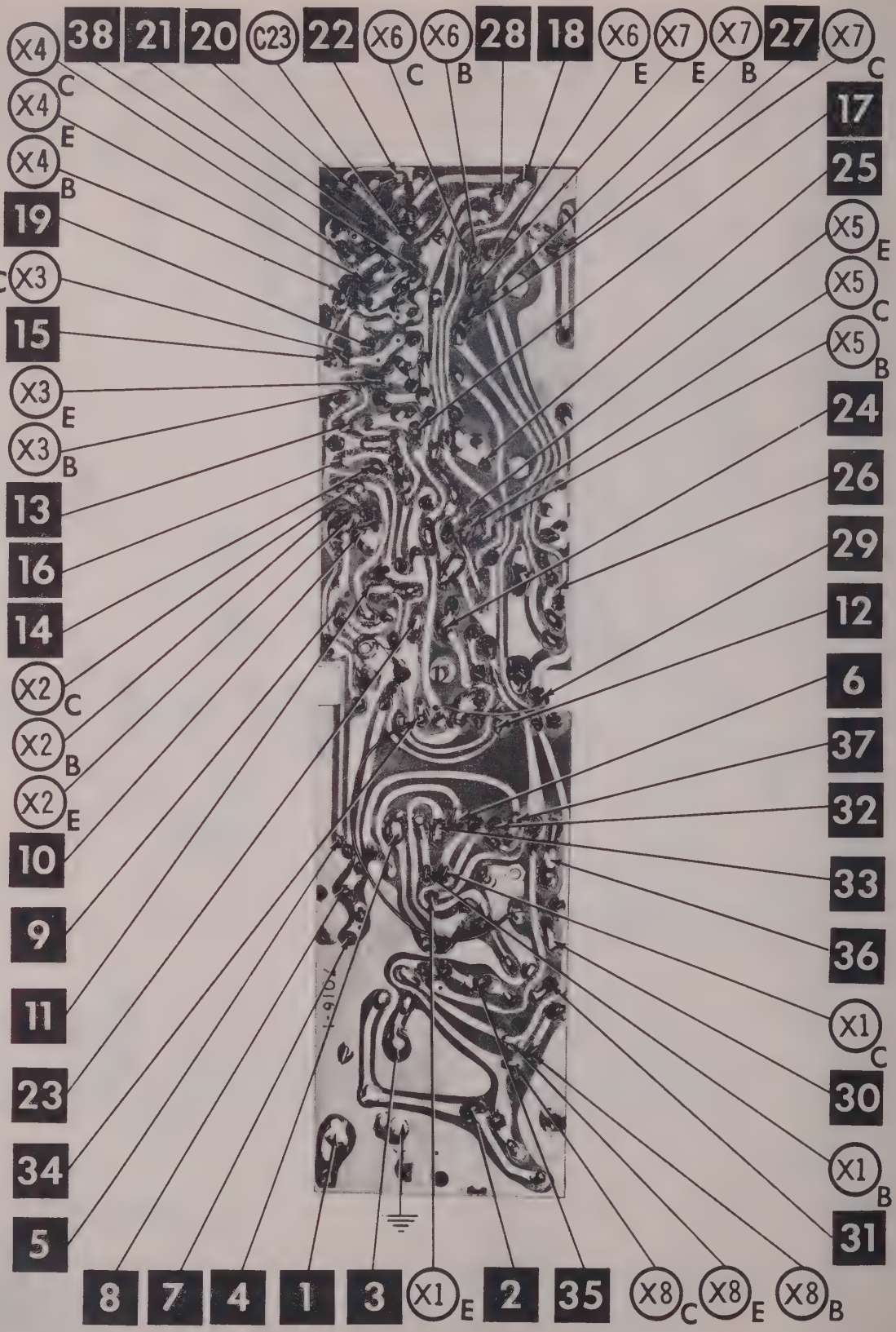


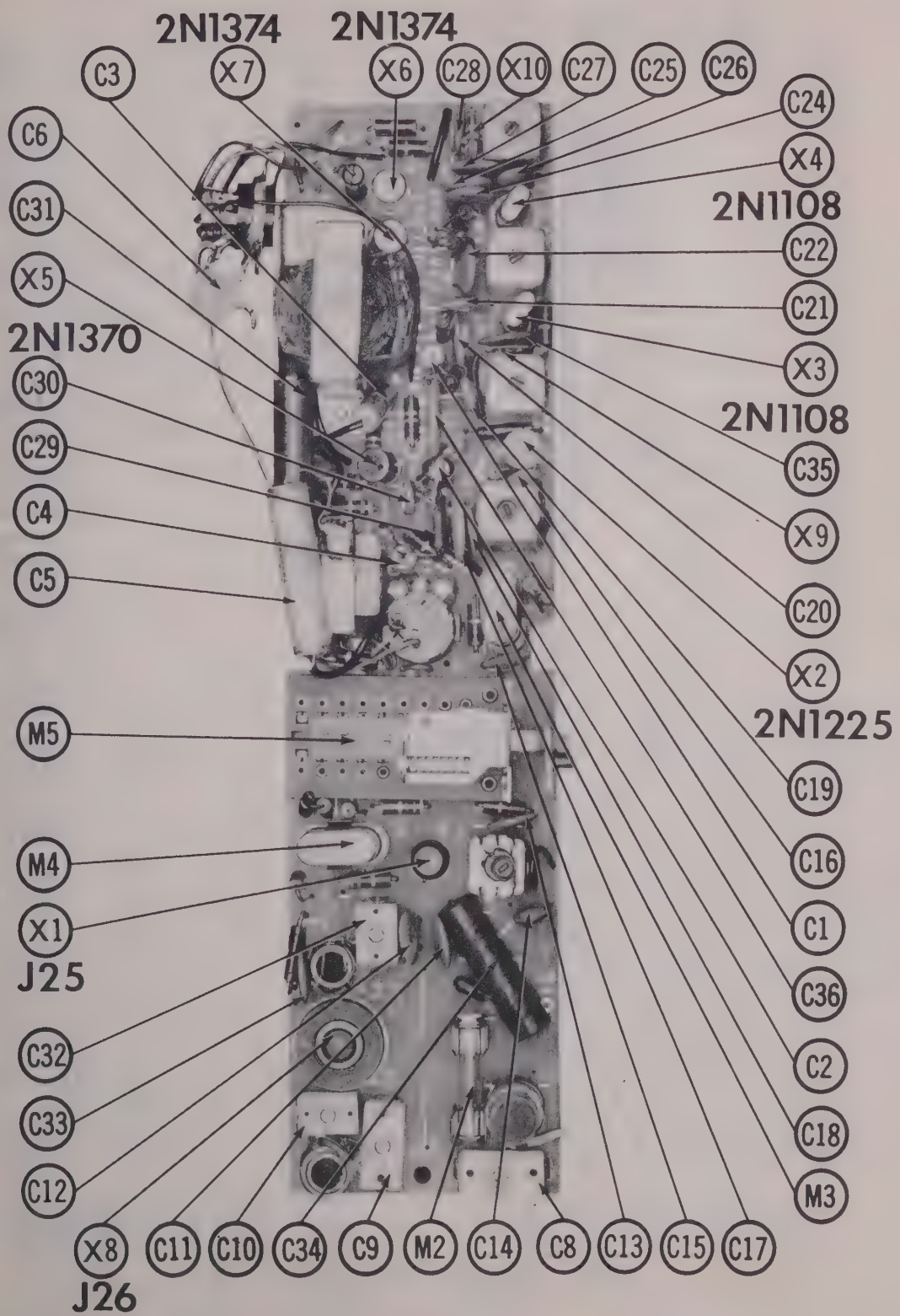
SPOKESMAN
MODEL 700



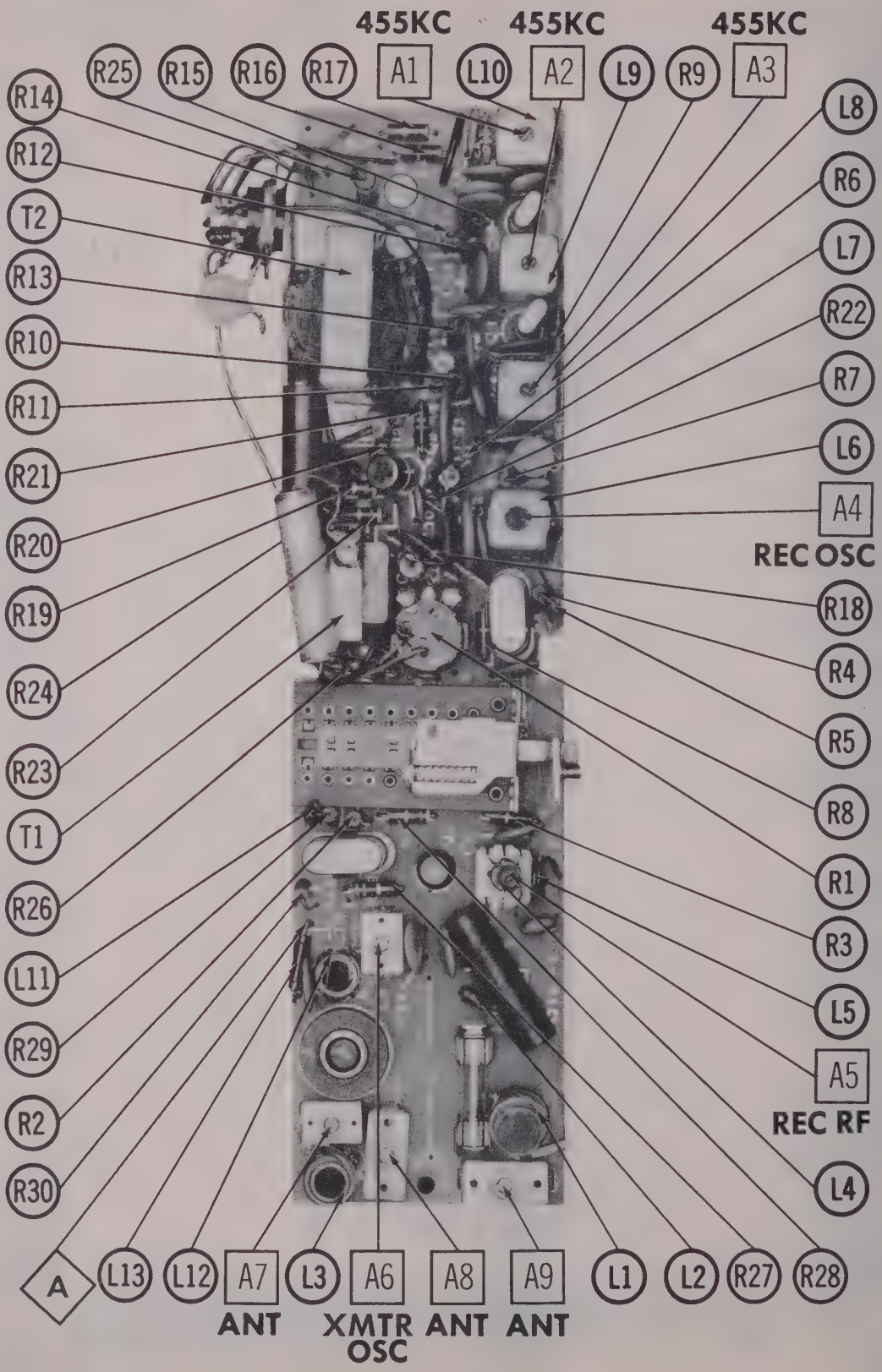
E-EMITTER B-BASE
C-COLLECTOR

A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD



PRINTED BOARD — CAPACITOR, TRANSISTOR & MISC. IDENT.



PRINTED BOARD — ALIGNMENT, INDUCTOR & RESISTOR IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT
Suggested Alignment Tools: A1 thru A9.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989 WALSCO #2515, 2531, 2532

RECEIVER ALIGNMENT

Connect VTVM across volume control.

	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1.	Tune to 455KC (Unmod.). High side to base of X2, common to ground.		A1, A2, A3	Remove Receiver crystal. Adjust for maximum deflection. Reinsert crystal.
2.	Tune to crystal freq. High side to antenna receptacle, low side to ground.	Highest Channel Used.	A4	Adjust for maximum deflection by rocking A4. Note rate of dropoff and set just below peak on side of gradual dropoff.
3.	"	"	A5	Adjust for maximum deflection. Repeat steps 2 & 3.

TRANSMITTER ALIGNMENT

Best results are obtained when the antenna to be used is connected to the unit, and the chassis is as nearly in the cabinet as possible.
Output frequency should be checked by an accurately calibrated secondary frequency standard to be sure frequency is within .005%.

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
4.	Connect suitable load to antenna receptacle.	DC VTVM between point (A) and ground.	A6	Adjust for maximum deflection while rocking A6. Note rate of dropoff. Set just below peak on side of gradual dropoff.
5.	"	RF wattmeter or field strength meter.	A7, A8, A9	Adjust for maximum deflection. Repeat adjustments.

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA: RCA PART No.	REPLACEMENT DATA: RAYTHEON PART No.	NOTES
X1	J-25	RF Amp.-Trans. Osc. Converter			NPN
X2	2N1225	1st IF Amplifier	2N1525		PNP
X3	2N1108	2nd IF Amplifier	2N1525		PNP
X4	2N1108	Driver-Speech Amp.	2N591	2N362	PNP
X5	2N1370	Output-Modulator		2N632	PNP
X6	2N1374	Output-Modulator		2N632	PNP
X7	2N1374	Final Amp.			PNP
X8	J-26				NPN

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS: RCA PART No.	RECTIFIERS: SARKES TARZIAN PART No.	DIODES: GENERAL ELECTRIC PART No.	DIODES: RAYTHEON PART No.	NOTES
X9		1N295				1N295A	Overload
X10		1N295				1N295A	Detector-AVC

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT.	SPOKESMAN PART No.	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	REPLACEMENT DATA: MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	10	6			PTT23	NLW10-6	MT1-5	TT6X10	M1V10-6	TE-1087
C2	5	6			PTT21	NLW5-15	MT1-3	TT6X5	M1V5-6	TE-1084
C3	2	15			PTT62	NLW2-50	MT1-1	TC302	M1V2-50	TE-1149
C4	2	15			PTT62	NLW2-50	MT1-1	TC302	M1V2-50	TE-1149
C5	100	25			PTT86	NLW100-25	MT1-20	TC2501	TD-100-25	TE-1211

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ELMENCO PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SPRAGUE PART No.
C6	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	18 N750 5%	(27), †		TCN-18	C10Q18U		CN7-418	10TCU-Q18
C8	14-150					424		
C9	70-350					428		
C10	8-60					404		
C11	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	56 N750 10%			TCN-56	C10Q56U	CCTN-560	CN7-456	10TCU-Q56
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	39 N750 10%			TCN-39	C10Q39U	CCTN-390	CN7-439	10TCU-Q39
C17	.05		BPD-05	DD-503	CUB2S5	1DP-2-503	BT-150	5HK-S50
C18	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	56 N750 10%			TCN-56	C10Q56U	CCTN-560	CN7-456	10TCU-Q56
C20	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	33 N750 10%		N750-DI 33	DTN-33	C10Q33U	CCTN-330	CN7-433	10TCU-Q33
C27	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	.01	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C31	.22 100V		P286N-22		CUB2P22	1DP-3-224	GEM-2022	2TM-P22
C32	3-35					403		
C33	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	.22 100V		P288N-22		CUB2P22	1DP-3-224	GEM-2022	2TM-P22
C35	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	.05		BPD-05	DD-503	CUB2S5	1DP-2-503	BT-150	5HK-S50

Note 1. Not used in some versions.
† Alternate Value.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			SPOKESMAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	5000Ω	B-1924				

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS
R2	1000Ω			
R3	2200Ω			
R4	4700Ω			
R5	33K			
R6	390Ω			(1000Ω)*
R7	470Ω			
R8	1000Ω			
R9	2200Ω			
R10	100K			
R11	10K			
R12	2200Ω			
R13	1000Ω			
R14	39K			
R15	4700Ω			
R16	1000Ω			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS
R17	1000Ω			
R18	1000Ω			
R19	4700Ω			
R20	22K			
R21	22K			
R22	390Ω			
R23	4700Ω			
R24	47Ω			(10Ω)*
R25	8.2Ω 1W			
R26	120Ω			(10Ω, 47Ω)*
R27	3300Ω			
R28	470Ω			
R29	33Ω			
R30	150Ω			

* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SPOKESMAN PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	
L1	Ant.	B-1940					
L2	RF Choke (2.2uh)	B-1995	BC-563	4606	RTC-8517	T857	
L3	Ant. Matching	B-1936					
L4	RF	B-1932					
L5	RF Choke	B-1998					
L6	Osc.	B-1933					
L7	RF Choke (2.2uh)	B-1995	BC-563	4606	RTC-8517	T857	
L8	1st IF	B-1937-1					
L9	2nd IF	B-1937-1					
L10	3rd IF	B-1937-2					
L11	RF Choke (2.2uh)	B-1995	BC-563	4606	RTC-8517	T857	
L12	Osc.	B-1935					
L13	RF Choke (2.2uh)	B-1995	BC-563	4606	RTC-8517	T857	

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SPOKESMAN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.5	1	C-2562-1					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SPOKESMAN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7500Ω CT	3-4Ω	C-2561-1					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SPOKESMAN PART No.	QUAM PART No.	
SP1	2 3/4"	PM	3-4Ω	C2565	27A06	

BATTERIES

ITEM No.	VOLTAGE	SPOKESMAN PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	13.5V			1		635		M-14F or Mn-1400	9 Used

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			SPOKESMAN PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	8AG	1/4 Amp 250V			362.250 (8AG 1/4A 250V)	101001	AGX 1/4	4503

MISCELLANEOUS

ITEM No.	PART NAME	SPOKESMAN PART No.	NOTES
M3	Crystal	C-2594	Receiver
M4	Crystal	C-2563	Transmitter
M5	Switch	B-1913	Pushbutton (Transmit-Receiver)
M6	Antanna Rod	B-7020	
	Printed Board	D-6004	
	Microphone	C-2564	
	Battery Holder Ass'y.	D-4098	Complete

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	B-1926	Push
Knob	B-1924	Rotary
Case, Front	D-4087	
Case, Rear	D-4086	
Case, Ass'y.	C-2591	Front
Case, Ass'y.	C-2592	Rear
Handle	B-7001	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid 22AWG) 8524 (Stranded 22AWG) 8570 (Stranded 26AWG) — Available in 12 Colors

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION, (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

TRADE NAME	Utica Model MC-27
MANUFACTURER	Utica Communications Corp., 5055 N. Kedzie Ave., Chicago 25, Illinois
TYPE SET	AC-Battery Operated 9 Tube 6 Channel Citizens Band Transmitter-Receiver
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles (or) 6 Volt Storage Battery (or) 12 Volt Storage Battery
RATING	55 Watts, .5 Amp. @ 117 Volts AC (Receiver); 70 Watts, .68 Amp. @117 Volts AC (Transmit) 10 Amp. @6 Volts DC (or) 4.5 Amp. @12.6 Volts DC
TUNING RANGE	Any 6 of Citizens Band Channels 1 thru 23

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Best results will be obtained when adjusting A9, A10 and A12 if the unit is connected to the antenna normally used and the unit is as nearly in the cabinet as possible.

Suggested Alignment Tools:

A1 thru A6, A9... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

A7, A8, A10..... GENERAL CEMENT #8721, 8722
WALSCO #2519

All..... GENERAL CEMENT #9091, 9091-L
WALSCO #2542

RECEIVER ALIGNMENT

Connect DC probe of VTVM to Point A , common to ground.

	SIGNAL GENERATOR	CHANNEL	ADJUST	REMARKS
1.	Tune to 266KC. Connect high side to pin 7 (grid) of Converter, low side to ground.	Unused Channel	A1, A2, A3, A4	Adjust for maximum deflection. Repeat.
2.	Tune to 1680KC. Connect high side to pin 2 (grid) of Mixer, low side to ground.	"	A5, A6	"
3.	Tune to channel frequency. High side to pin 1 (grid) of RF Amp, low side to ground.	Center Channel Used	A7	Adjust for maximum deflection while rocking. Note rate of drop-off on each side of peak and set to point just below peak in direction of gradual drop-off.
4.	"	"	A8	Adjust for maximum deflection.
5.	Tune to 1680KC. Connect high side to antenna input, low side to ground.	"	A9, A10	Adjust for maximum deflection. Repeat.

TRANSMITTER ALIGNMENT

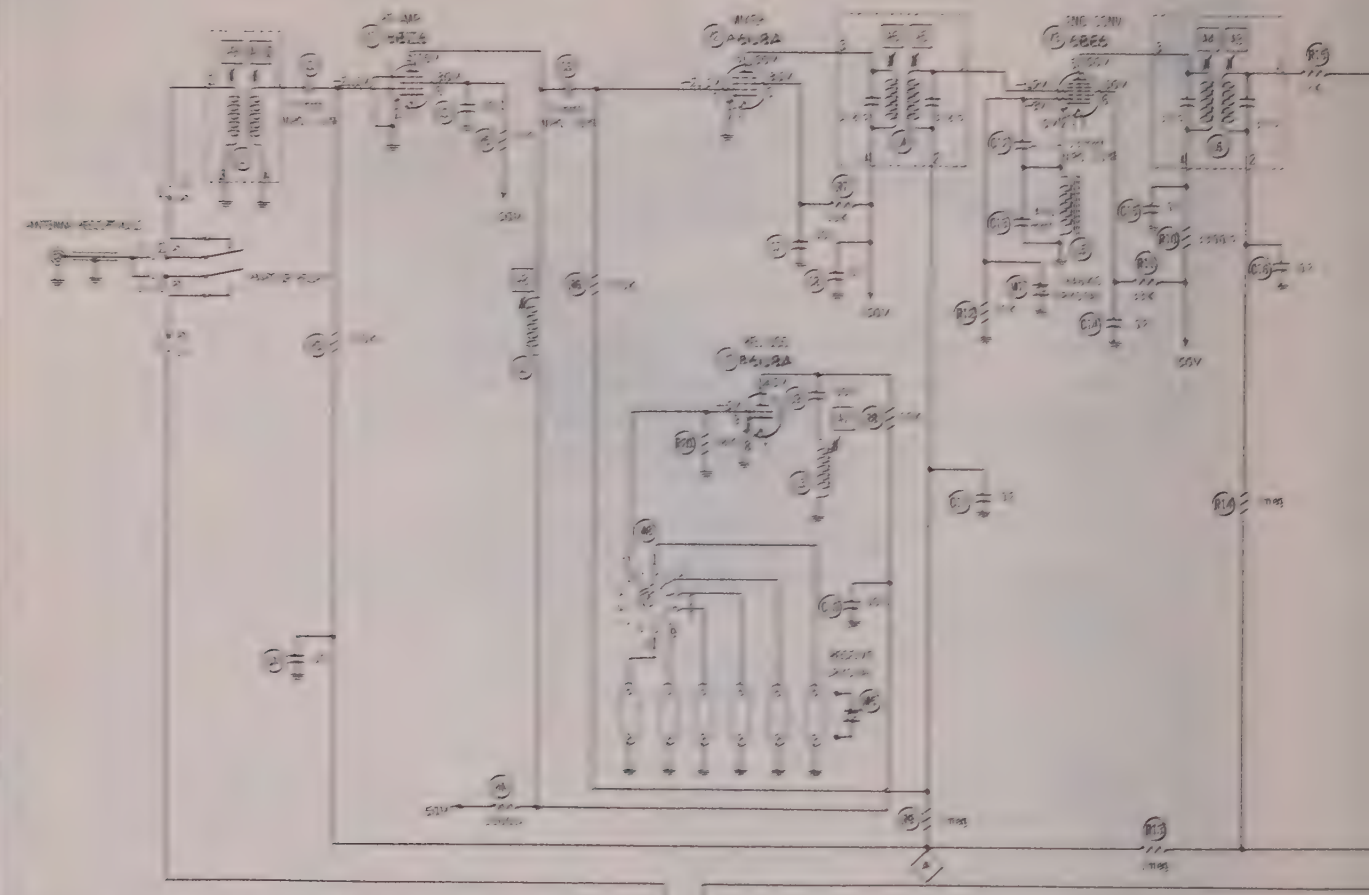
Output frequency should be checked by an accurately calibrated secondary frequency standard to be sure frequency is within .005%.

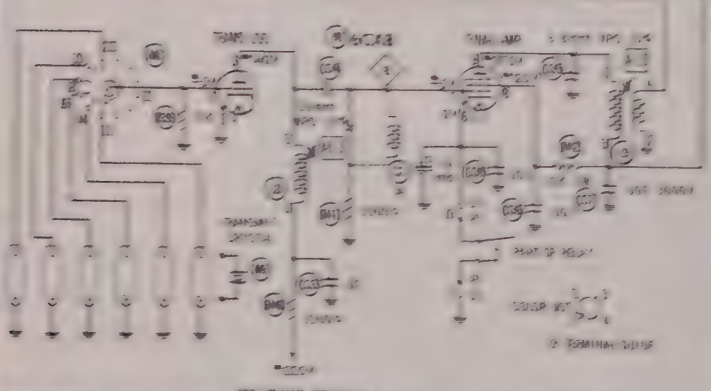
ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71)

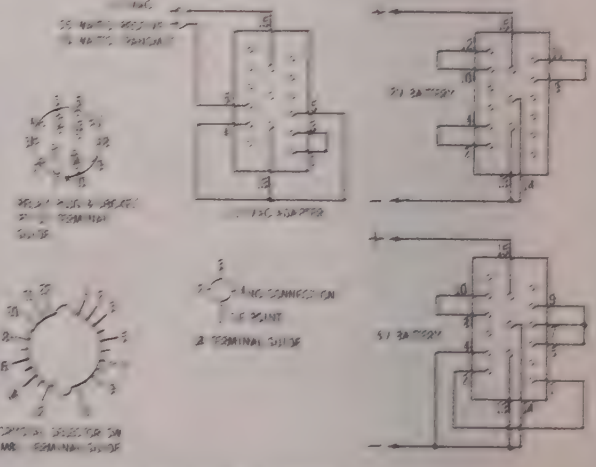
	SPECIAL INSTRUCTIONS	INDICATOR	ADJUST	REMARKS
6.	Tune transmitter to highest channel used.	Connect DC probe of VTVM to point B , common to ground.	A11	Adjust for maximum deflection while rocking A11. Note rate of drop-off on each side of peak and set just below peak on side of gradual drop-off.
7.	Connect dummy load or antenna to antenna input. Tune transmitter to center frequency.	RF wattmeter or field strength meter.	A12	Adjust for maximum output.

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of LY264

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1962 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America







RESISTANCE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9
V1	6AQ5	270K	1K			470Ω	1K	1K		
V2	6BA6	1.5M	270K	68K	1K		470Ω	1K	1.5M	68K
V3	6BE6	68K	1K	1K	1K	470Ω	1K	270K		
V4	6BA6	1.5M	270K	68K	1K	470Ω	1K	1K		
V5	6AQ5	1.5M	270K	68K	1K	470Ω	1K	1K		
V6	6BA6	1.5M	270K	68K	1K	470Ω	1K	270K	68K	
V7	6AQ5	270K	68K	1K	1K	470Ω	1K	1K		
V8	6BA6	1.5M	270K	68K	1K	470Ω	1K	270K	68K	
V9	6BA6	1.5M	270K	68K	1K	470Ω	1K	270K	68K	

1. MEASURED FROM TERMINAL INDICATED TO CHASSIS WITH 20,000 OHMS PER VOLT METER.
2. MEASURED FROM PIN 1 OF V1 TO CHASSIS WITH 20,000 OHMS PER VOLT METER.
3. ALL READINGS WITHIN ± 20% UNLESS OTHERWISE INDICATED.
4. ALL VOLTAGE READINGS TAKEN WITH 20,000 OHMS PER VOLT METER.
5. ALL VOLTAGE READINGS TAKEN WITH SET TUNED TO CHANNEL 2 AND NO SIGNAL INPUT.
6. NO CONNECTION.

* PHOTOFACT STANDARD NOTATION SCHEMATIC

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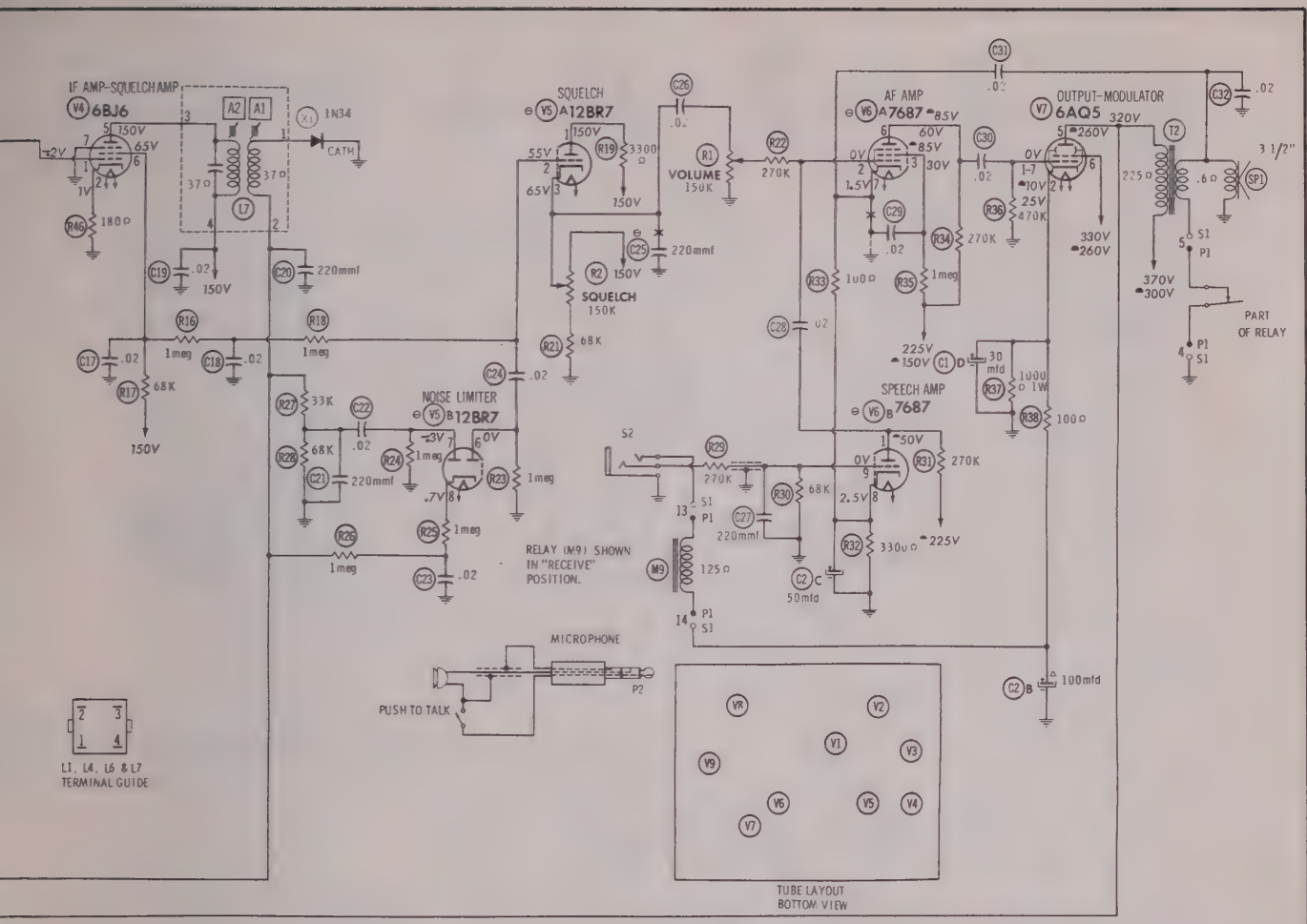
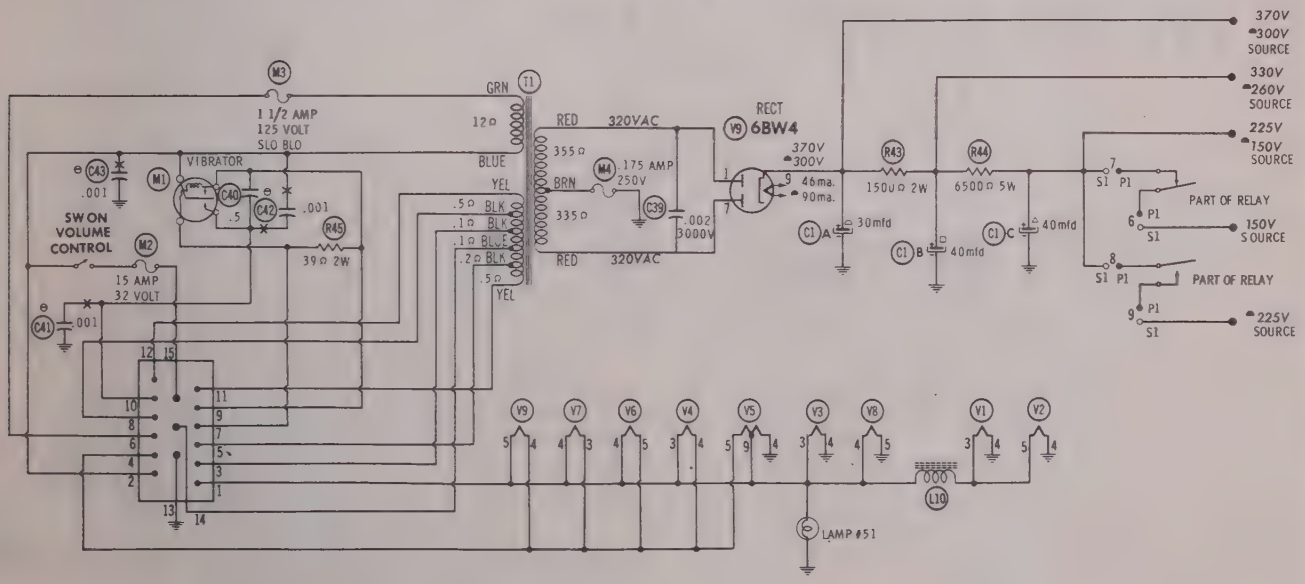
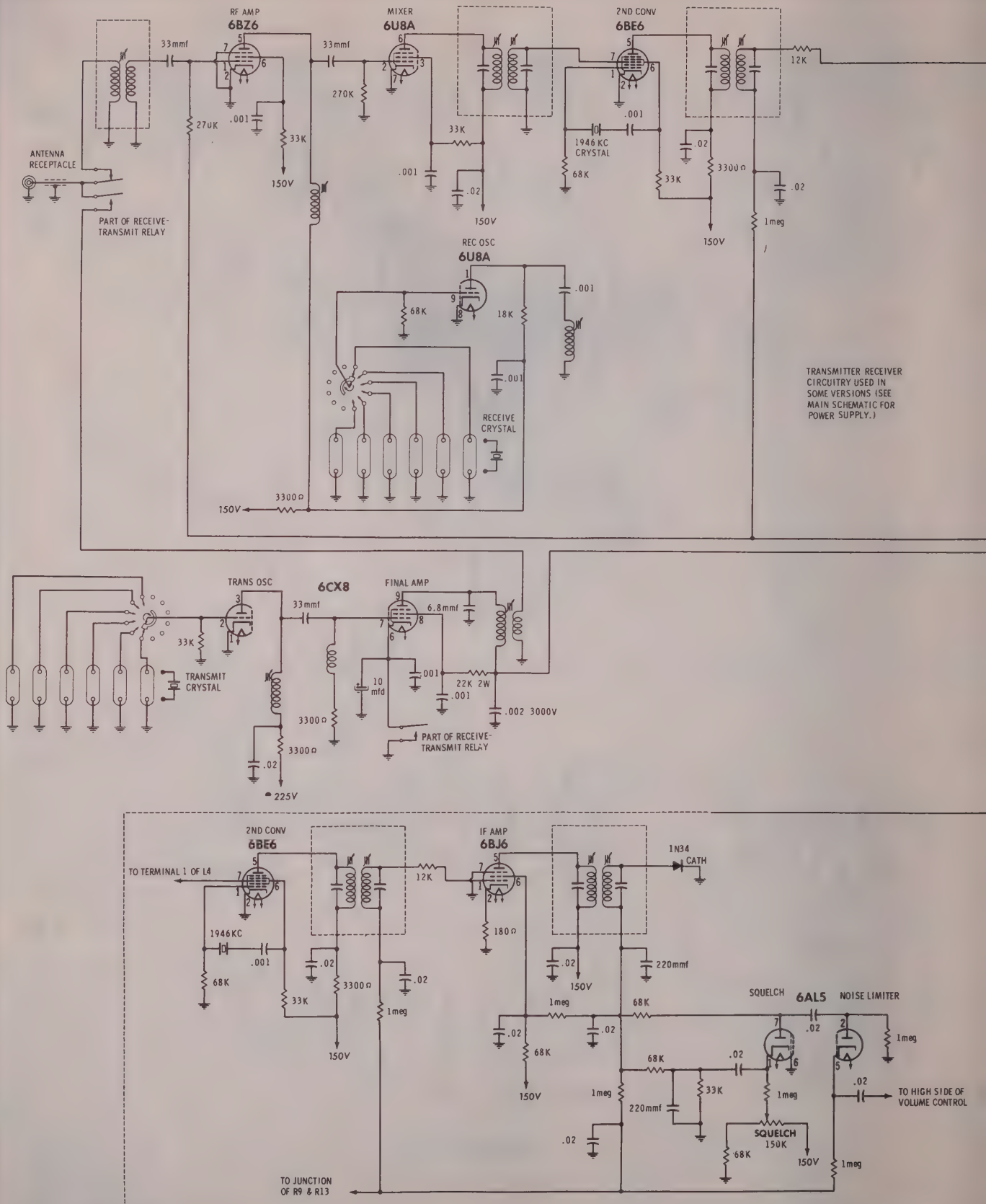




SEE ALTERNATE CIRCUIT

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

UTICA
MODEL MC-27



ALTERNATE CIRCUIT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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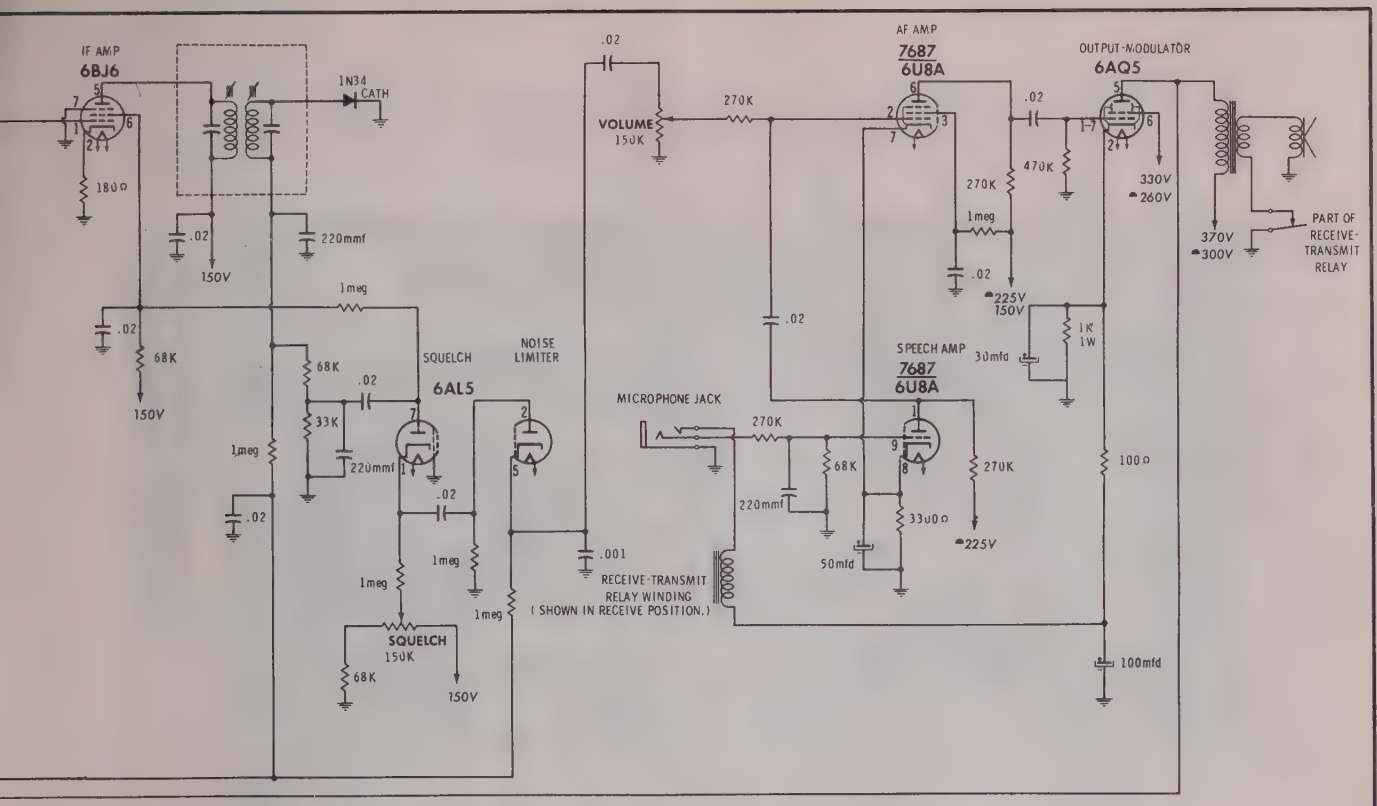
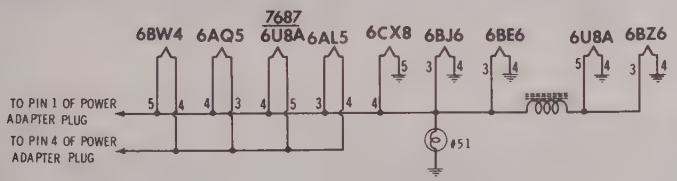
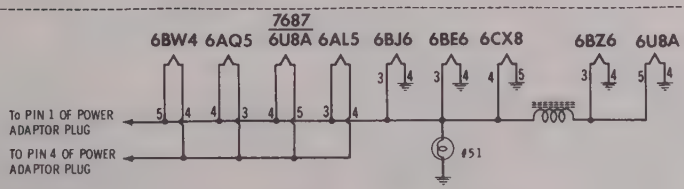






2ND CONV., IF AMP, SQUELCH, NOISE LIMITER, DETECTOR & FILAMENT CIRCUITRY USED IN SOME VERSIONS.

CHASSIS BOTTOM VIEW — RESISTOR & INDUCTOR IDENT.

CHASSIS BOTTOM VIEW — CAPACITOR & MISC. IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

AMPEREX - GENERAL ELECTRIC			RAYTHEON - SYLVANIA		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	6BZ6	V6	Speech Amp. -AF Amp.	7687 (6U8A)*
V2	Mixer-Rec. Osc.	6U8A	V7	Output-Modulator	6AQ5
V3	Converter	6BE6	V8	Trans. Osc. -Final Amp.	6CX8
V4	IF Amp. -Squelch Amp.	6BJ6	V9	Rectifier	6BW4
V5	Squelch - Noise Lim.	12BR7 Note 1			

Note 1. Early version uses 6AL5 in this application.
* Alternate.

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES	NOTES
			RCA PART No.	SARKES TARZIAN PART No.	RAYTHEON PART No.	
X1		1N34			1N34A	Detector

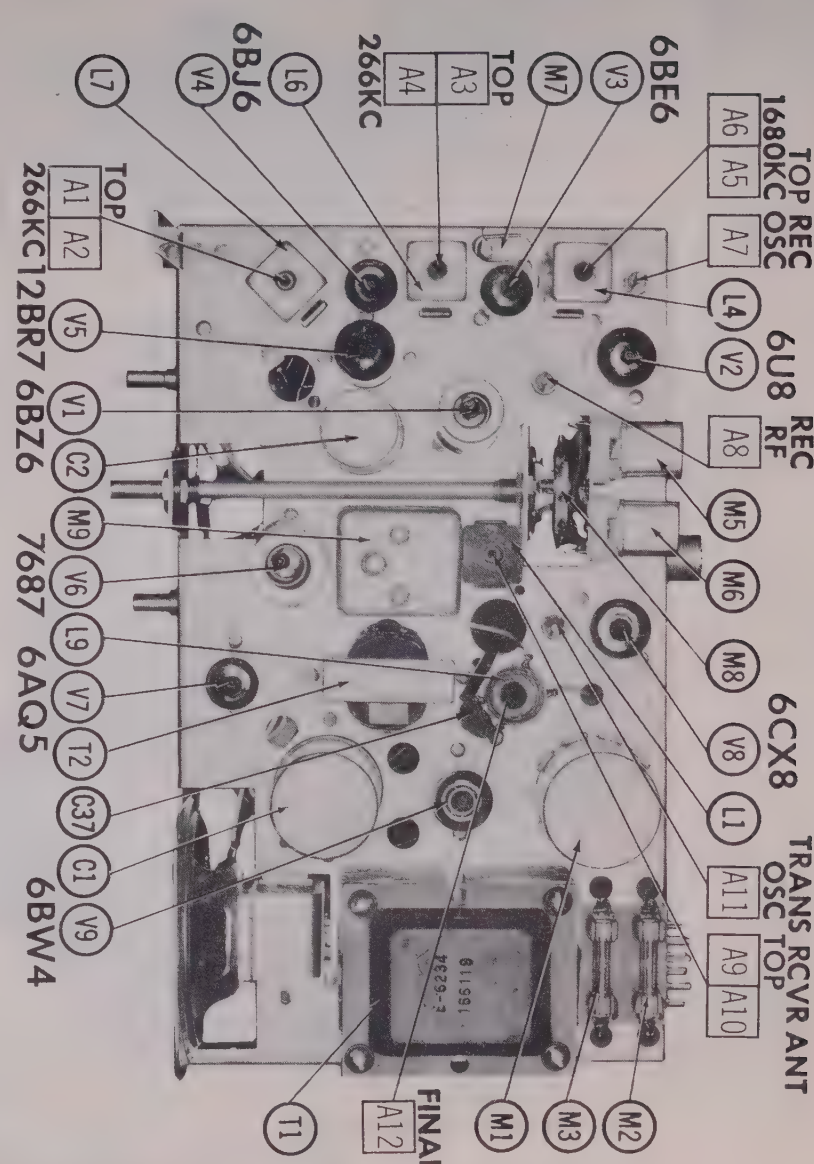
ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	UTICA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲30	450		AFH3-140-50	C0870	XC3-39	FP345.3	TMT-3367	TVL-3744
B	■40	350		PRS1460	BR3045	QT1-12	TC78	TD-30-450	TVA-1711
C	▲40	350							
D	30	25							
C2A	■10	100		AFH2-05	B0070	XC2-32	WP272	TMD-2035	TVL-2224
B	▲100	25		PRS1410	BBR10-150	QT1-5	TT6X50	TD-10-150	TVA-1406
C	50	6							

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	33 NPO 10%		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C4	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C5	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C6	33 NPO 10%		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C7	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C9	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C10	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C11	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C12	33 NPO 10%		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C13	470		DI-470	DD-471	L10T47	CCD-471	B-347	10TS-T47
C14	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C15	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C16	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C17	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C18	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C19	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C20	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C21	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C22	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C23	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C24	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C25	220	Note 1	DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C26	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C27	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C28	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C29	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C30	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C31	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C32	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C33	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C34	33 NPO 10%		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C35	6.8 NPO 10%		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C36	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C37	.002 3000V		HVD-30-2200	DD30-202	HVC30D2	3CCD-202	3HV-222	30GA-D20

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C38	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C39	.002 3000V		HVD-30-2200	DD30-202	HVC30D2	3CCD-202	3HV-222	30GA-D20
C40	.5 100V		P288N-5		CUB2P5	IDP-4-504	GEM-205	2TM-P50
C41	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C42	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C43	.001	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

Note 1. Not used in some versions.

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			UTICA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume & Switch	150K		B-44, KR-1, or (AB-44, AK-11, KR-1)	A47-150K-S/ RS-2, SWE-12	B13-328, SK3, 76-1	U42, US-26
R2	Squelch	150K		B-43, or (AB-43, AK-11)	A47-150K-S/ RS-2	B11-326, SK3	U43

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS
R3	270K			
R4	3300Ω			
R5	33K			
R6	270K			
R7	33K			
R8	22K			
R9	1meg			
R10	3300Ω			
R11	33K			
R12	22K			
R13	1meg			
R14	1meg			
R15	12K			
R16	1meg			
R17	68K			
R18	1meg			
R19	3300Ω			
R20	68K			
R21	68K			
R22	270K			
R23	1meg			
R24	1meg			
R25	1meg			
R26	1meg			
R27	33K			
R28	68K			
R29	270K			
R30	68K			
R31	270K			
R32	3300Ω			
R33	100Ω			
R34	270K			
R35	1meg			
R36	470K			
R37	1000Ω 1W			
R38	100Ω			
R39	33K			
R40	3300Ω			
R41	3300Ω			
R42	22K 2W			
R43	1500Ω 2W			
R44	6500Ω 5W	PW5-6500	5W-SQ-6500	
R45	39Ω 2W			
R46	180Ω			
R47	68K			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		UTICA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	
L1	Ant.		TV-140			T234	
L2	RF		SW-608	6171-A	RTC-8609	T216	
L3	Osc. Plate		SW-608	6171-A	RTC-8609	T216	
L4	1680KC IF						
L5	RF Choke (50uh)		TV-193	4629	RTC-8668	T982	
L6	1st 266KC IF		BC-350	12-H1	RTC-8638	T604	
L7	2nd 266KC IF		BC-351	12-H2	RTC-8639	T605	
L8	Osc. Plate		SW-608	6171-A	RTC-8609	T216	
L9	Final						
L10	Fil. Choke (50uh)						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	UTICA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117VAC	↑ 640 VCT	6.4V Ⓐ 4A	E-6234					* .5A (Rec) .680A (Trans) ↑ .046A (Rec) .090A (Trans)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	UTICA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7300Ω	3-4Ω	E-6256					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	UTICA PART No.	QUAM PART No.	
SP1	3½"	PM	3-4Ω	X-0315	3A07	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				UTICA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	6V	115~	V1B (1610)	5372	1610	5372	

FUSES

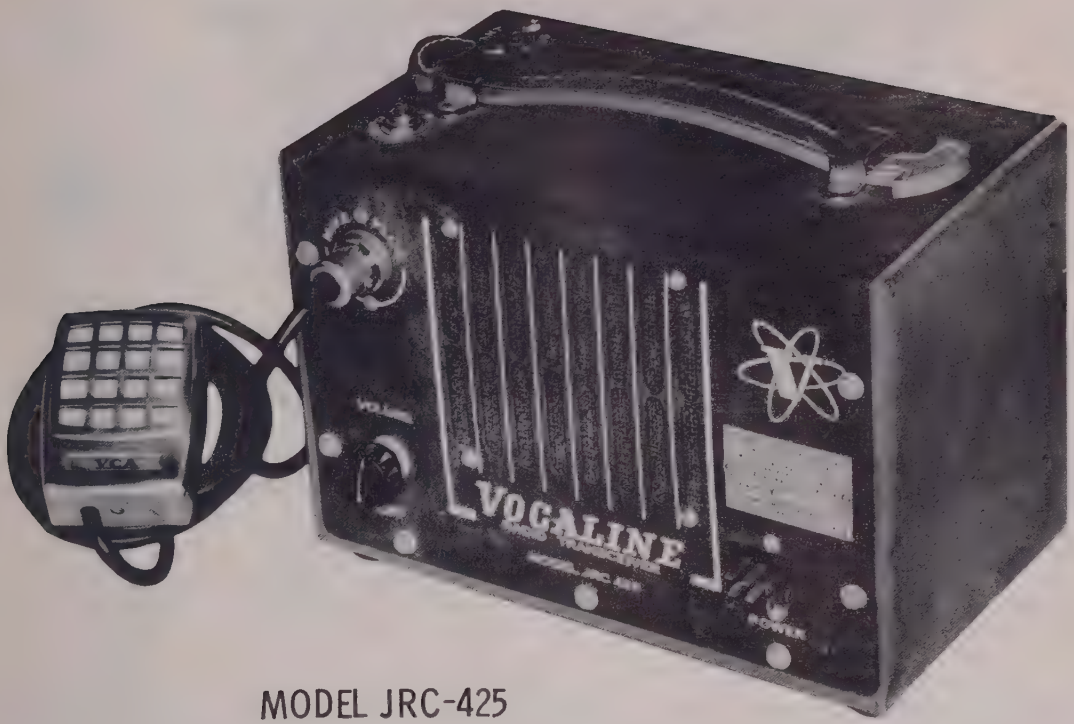
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			UTICA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	15A 32V			311015 (3AG 15A 32V	357002	AGC 15	3823-2
M3	3AG	1¼A 125V			31301.5 (3AG 1¼A 125V	357002	AGC 1¼	3823-2
M4	3AG	.175A 250V			312.175 (3AG .175A 250V)	357001	AGC 175/1000	4405

MISCELLANEOUS

ITEM No.	PART NAME	UTICA PART No.	NOTES
M5	Crystal		Receive
M6	Crystal		Transmit
M7	Crystal		1946 KC
M8	Switch		Crystal Selector (Rotary Wafer Type)
M9	Relay		Plug in Type (125Ω Coil)

WIRING DATA

General-use Hook-up Wire .... Use BELDEN No. 8530 (Solid) Available in 12 Colors
8524 (Stranded) Available in 12 Colors
Shielded Antenna Lead ..... Use BELDEN No. 8214 Lowest Loss (RG-8/U Type)
8237 Low Loss (RG-8/U)
8240 (Solid) Miniature (RG-58/U)
8259 (Stranded) Miniature (RG-58A/U)
Coiled Microphone Cable ..... Use BELDEN No. 8497 3 Conductor- 1 Shielded for Press-to-Talk (Neoprene)
8496 3 Conductor- 1 Shielded for Press-to-Talk (Vinyl)
Ignition Noise Suppression .... Use BELDEN No. 7300-Series Spark-Plug Sets
Bonding Strap ..... Use BELDEN No. 8661 (3/8 in.)



MODEL JRC-425

TRADE NAME	Vocaline Models JRC-400, JRC-425
MANUFACTURER	Vocaline Company of America, Inc., Old Saybrook, Connecticut
TYPE SET	AC-Battery Operated Single Channel 3 Tube Citizens Band Transmitter-Receiver
POWER SUPPLY	110-120 Volts AC, 60 Cycles (or) 6 Volt Storage Battery
RATING	16 Watts, .2 Amp. @ 117 Volts AC (Receive), 20 Watts, .34 Amp. @ 117 Volts AC (Transmitt) 3.3 Amp. @ 6.3 Volts DC
TUNING RANGE	465 MC

VOCALINE MODELS
JRC-400, JRC-425

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KZ439

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Superregenerative Det. - Trans. Osc.	6AF4A	V2 V3	AF Amp. -Speech Amp. Output-Modulator	6AV6 6AS5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	VOCALINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■40	150		AFH3-10	C0090	FP311.5	TMT-3127	TVL-3442	
B	▲40	150							
C	40	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.5-3			829-3		CV-1		
C3	100 5%		1469-0001	TCZ-100	22R5T1	CM-19B-101J	MCE235	MS-31
C4	150 5%		1469-00015	TCZ-150	22R5T15	CM-19B-151J	MCE236	MS-315
C5	1000		EF-001	MFT-1000		CCF-102	CT280A	
C6	2000		BPD-002	DD-202	BYA10D2	CCD-220	B-220	5HK-D20
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	2000		BPD-002	DD-202	BYA10D2	CCD-220	B-220	5HK-D20
C9	2000		BPD-002	DD-202	BYA10D2	CCD-220	B-220	5HK-D20
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	.05 1000V		P1088N-05		CUB10S5	16DP-5-503	GEM-1015	10TM-S50
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	VOCALINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	500K	½	PE013-WT	B-59	A47-500K-S	Q11-133	U50	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On

RESISTORS

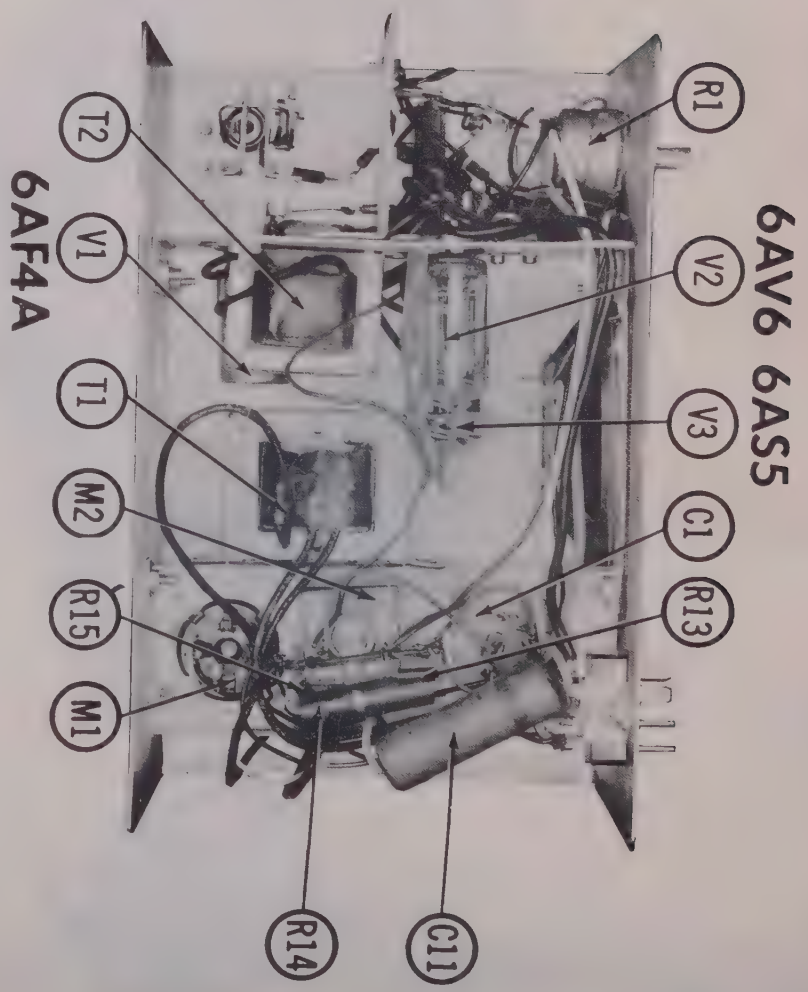
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	10K				R9	470Ω			
R3	470Ω				R10	150Ω			
R4	270K				R11	22K			
R5	150Ω				R12	100K			
R6	22K				R13	2200Ω			
R7	470Ω				R14	220Ω 2W			
R8	150Ω				R15	15Ω			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	VOCALINE PART No.	REPLACEMENT DATA
K1	Audio Coupling	220mmf, 250mmf, 2000mmf, 5000mmf, 470K, 470K, 6.8meg		Aerovox PA-113-1 Centralab PC-150 Sprague DT-1

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		VOCALINE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant.	①		4588	RTC-8513	T958	① IRC Part #CLA
L2	RF Choke (.47uh)						
L3	Osc.	①		4588	RTC-8513	T958	
L4	Fil. Choke (.47uh)	①		4588	RTC-8513	T958	
L5	Fil. Choke (.47uh)						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	VOCALINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	6.3VCT* ⓐ · 2A	120V ⓐ* .065A		504K1					* DC Operation. † AC Operation.
	117V ⓐ † .8A	6.3V ⓐ † 1.3A							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	VOCALINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	2300Ω	3-4Ω	PE 023		A-3876			

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	VOCALINE PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	V4B33	4A07	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				VOCALINE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	6V	115∿		5301	1601	5301	

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	VOCALINE PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M2	.065A	♦	1N1763 *	100A ♦	SR500 *	♦ Selenium * Silicon (Use Surge Limiter)

MISCELLANEOUS

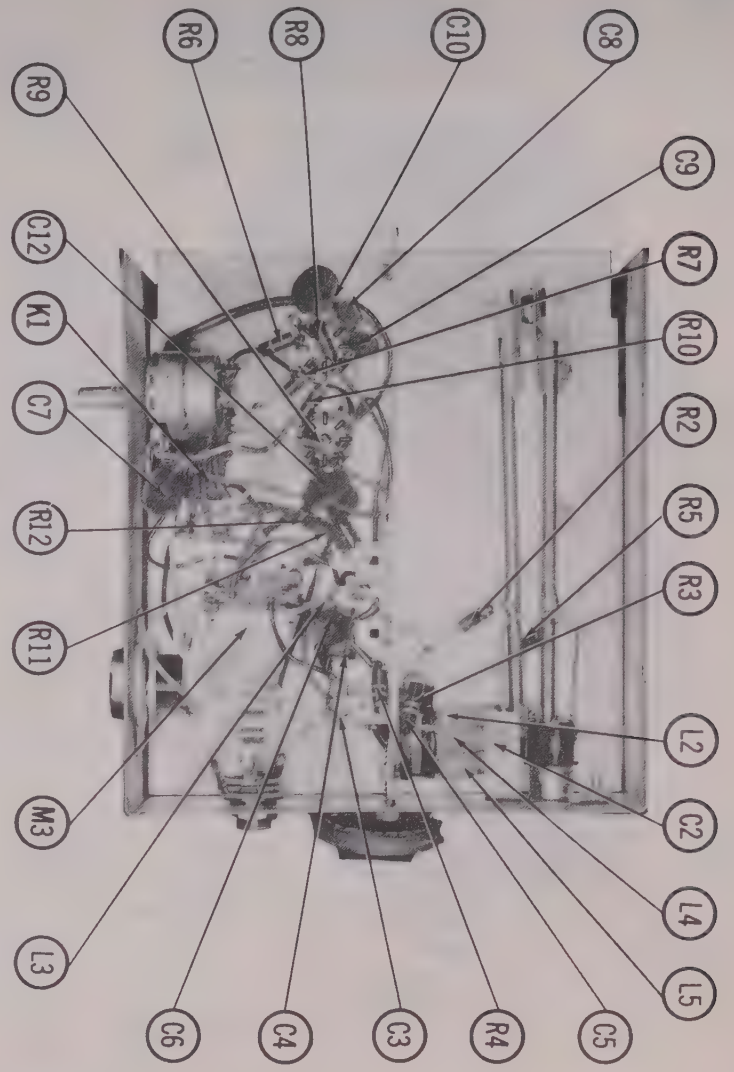
ITEM No.	PART NAME	VOCALINE PART No.	NOTES
M3	Relay		Switching

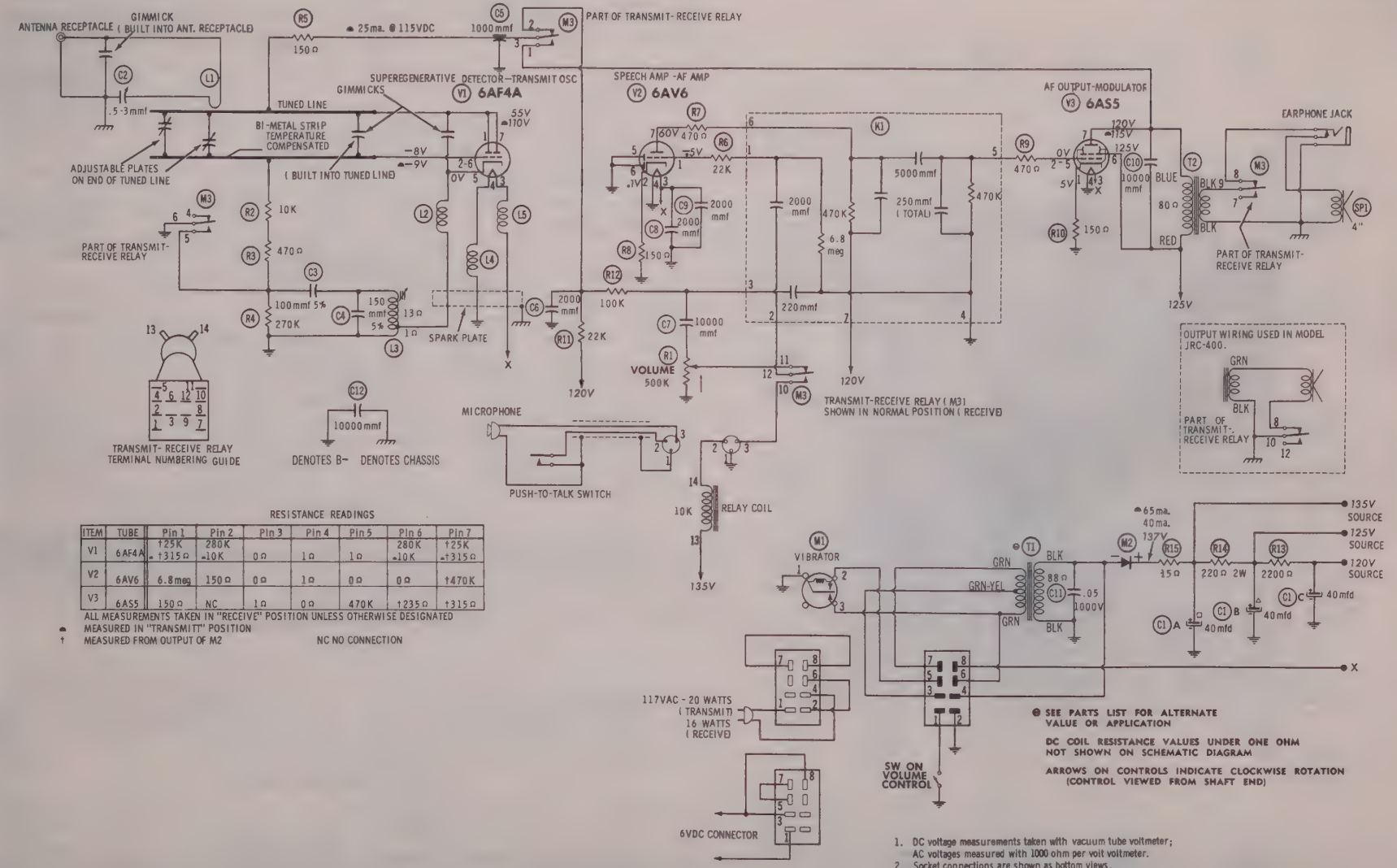
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	6AF4A	†25K • †315Ω	280K •10K	0Ω	1Ω	1Ω	280K •10K	†25K •†315Ω
V2	6AV6	6.8meg	150Ω	0Ω	1Ω	0Ω	0Ω	†470K
V3	6AS5	150Ω	NC	1Ω	0Ω	470K	†235Ω	†315Ω

ALL MEASUREMENTS TAKEN IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED
• MEASURED IN "TRANSMIT" POSITION
† MEASURED FROM OUTPUT OF M2
NC NO CONNECTION

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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VOCALINE MODELS JRC-400, JRC-425

WEBSTER MODEL FOUR-ELEVEN

WEBSTER MODEL FOUR-ELEVEN

TRADE NAME	Webster Model FOUR-ELEVEN
MANUFACTURER	Webster Electric Co., 1900 Clark Street, Racine, Wisconsin
TYPE SET	AC-Battery Operated 8 Tube Crystal Controlled Citizens Band Transmitter — Receiver
POWER SUPPLY	110-120 Volts AC, 60 Cycles (or) 12 Volt Storage Battery
RATING	65 Watts, .6 Amp. @117 Volts AC (or) 5 Amp. @12.6 Volts DC
TUNING RANGE	Any 4 of Citizens Band Channels 1 thru 23

NOTICE

ONLY THOSE PERSONS PROPERLY LICENSED ARE PERMITTED TO MAKE REPAIRS OR ADJUSTMENTS WHICH MAY RESULT IN ILLEGAL OPERATION. (REFER TO FCC RULES & REGULATIONS PART 19, SUBPART D, SECTION 19.71).

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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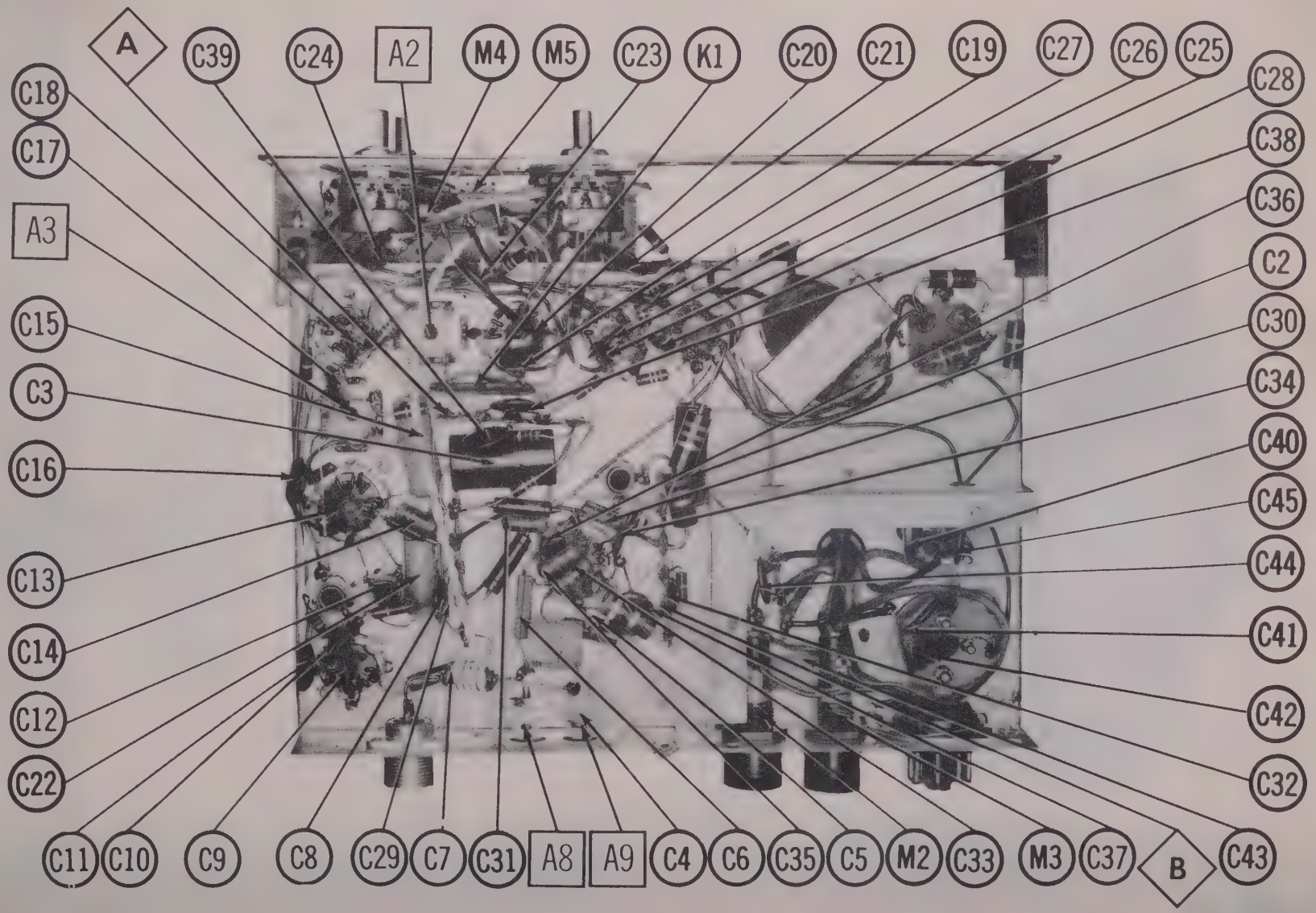
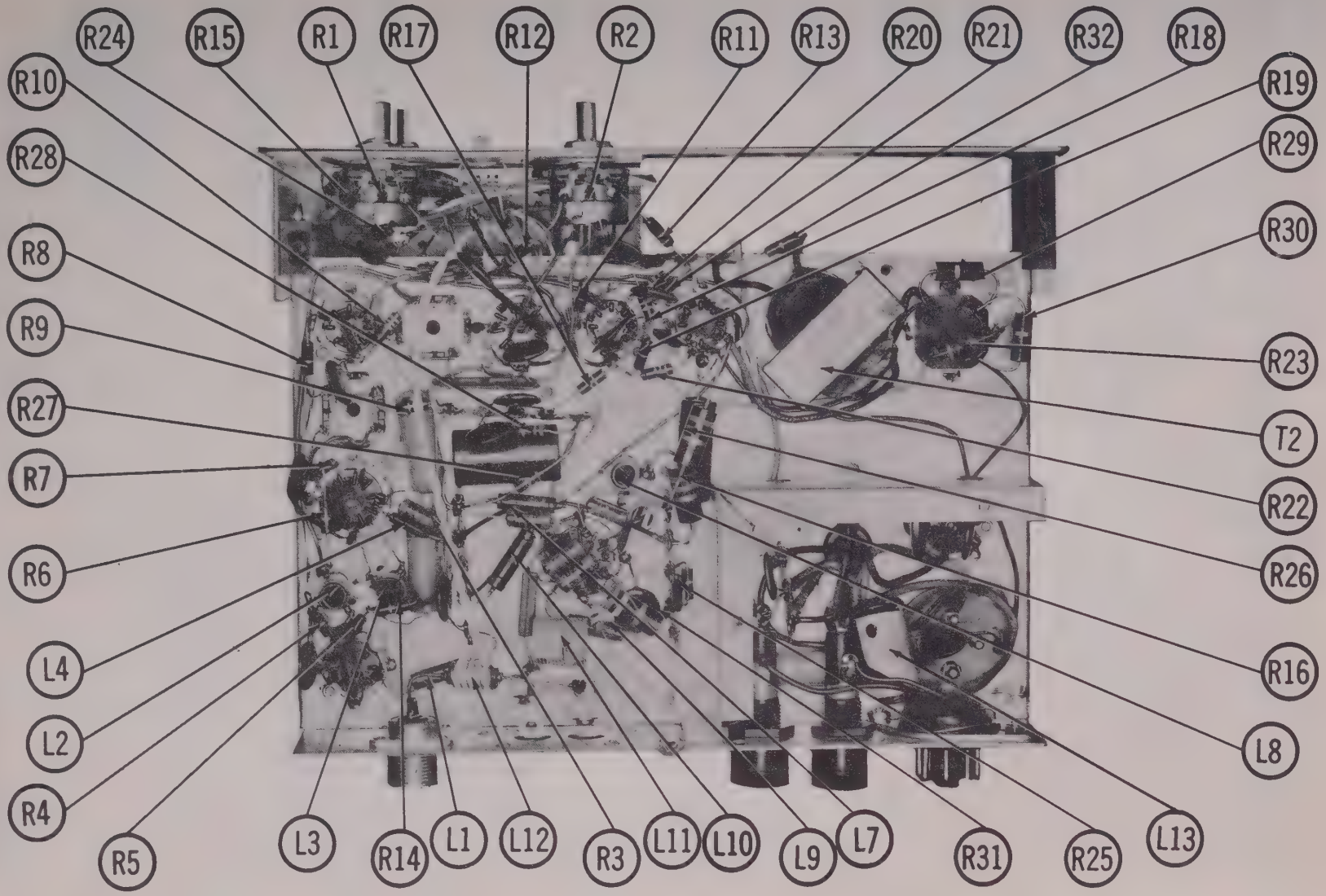
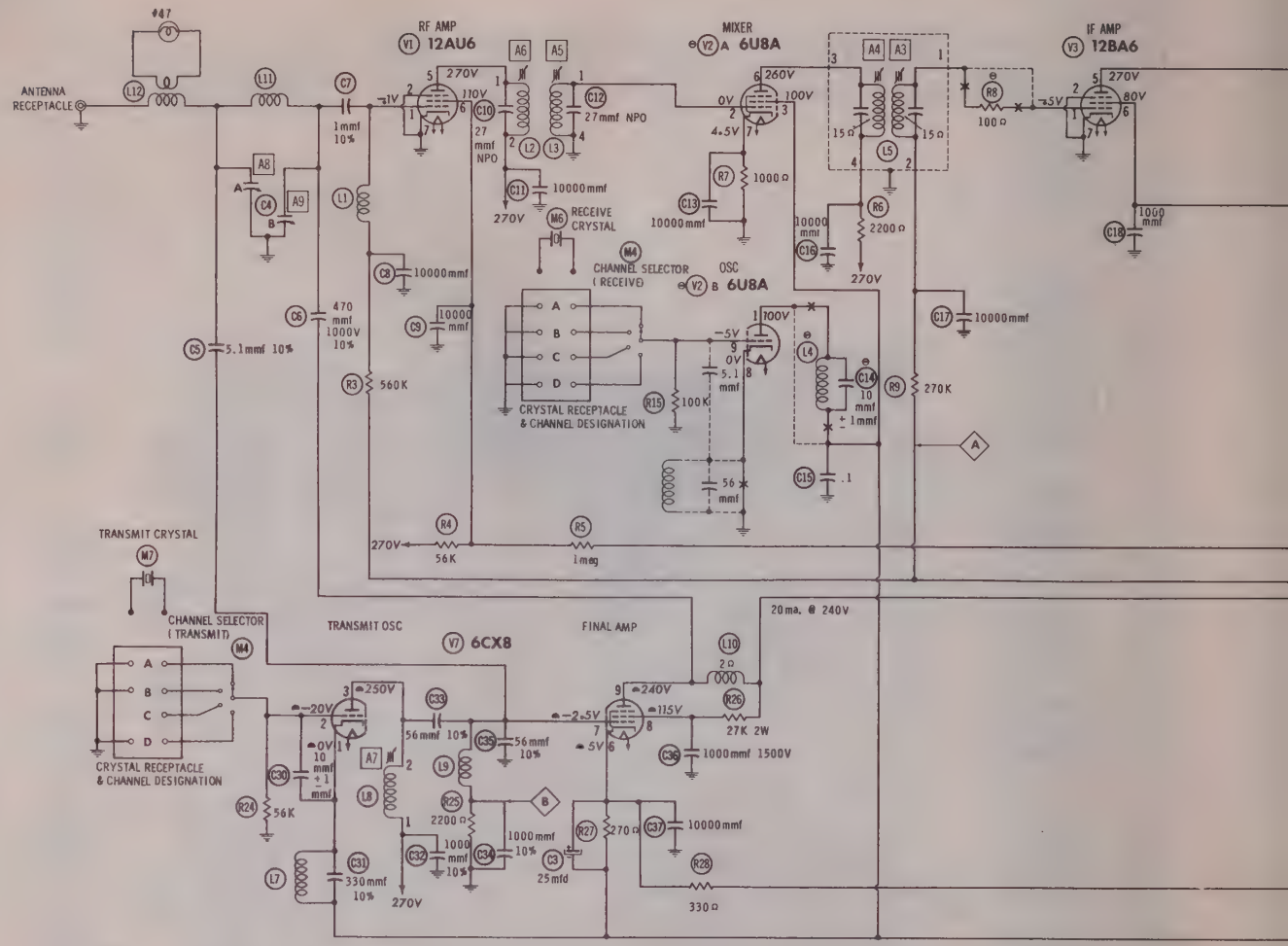


CHASSIS BOTTOM VIEW-ALIGNMENT, CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU6	2.1meg	0Ω	0Ω	.1Ω	†200Ω	†56K	0Ω		
V2	6U8A	†27K	.1Ω	†27K	.1Ω	.1Ω	†2400Ω	1000Ω	0Ω	100K
V3	12BA6	1.5meg	0Ω	0Ω	.1Ω	†200Ω	†56K	0Ω		
V4	6BJ7	0Ω	550K	0Ω	.1Ω	0Ω	†2meg	†1.1meg	270K	2.6meg
V5	12CR6	0Ω	NC	0Ω	.1Ω	†270K	†1meg	2.2meg		
V6	12AQ5	560K	470Ω	0Ω	.1Ω	†460Ω	†200Ω	560K		
V7	6CX8	▲0Ω	56K	▲†200Ω	.1Ω	.1Ω	▲270Ω	2200Ω	†27K	†460Ω
V8	12X4	225Ω	NC	.1Ω	0Ω	NC	210Ω	¶		

ALL MEASUREMENTS MADE IN "RECEIVE" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "TRANSMIT" POSITION.
† MEASURED FROM PIN 7 OF V8.
NC NO CONNECTION
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELEC TROLYTIC IN THE CIRCUIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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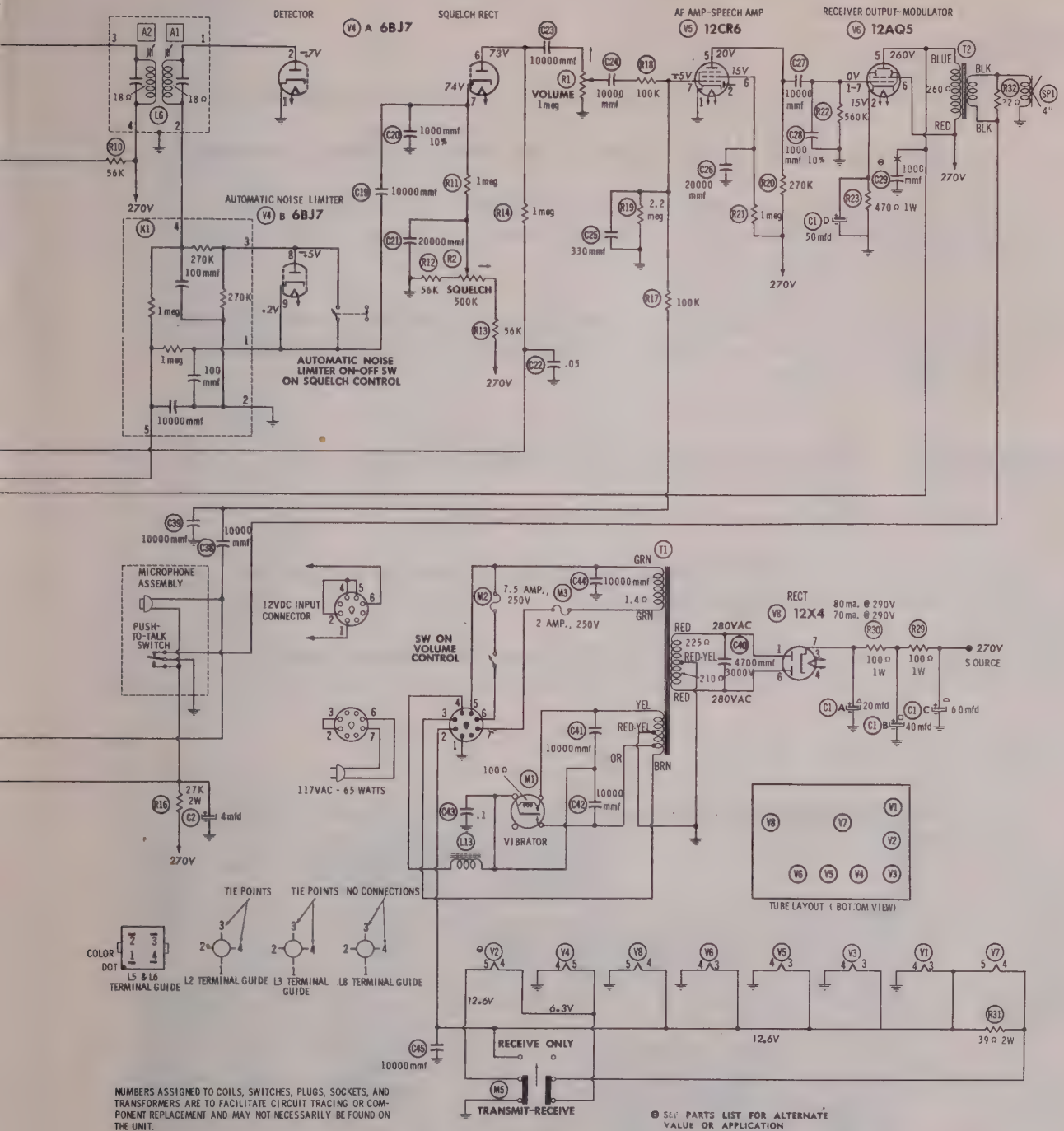


NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

WEBSTER MODEL FOUR-ELEVEN

ALIGNMENT INSTRUCTIONS

RECEIVER

1. Connect DC probe of VTVM to point Ⓐ, common to chassis.

   Turn squelch control to off position, (maximum counter clockwise).

   Connect high side of Signal Generator (455KC, 400∿ mod.), thru .1mfd to pin 2 of V2A, Low side to chassis. Adjust A1, A2, A3, and A4 for maximum deflection.

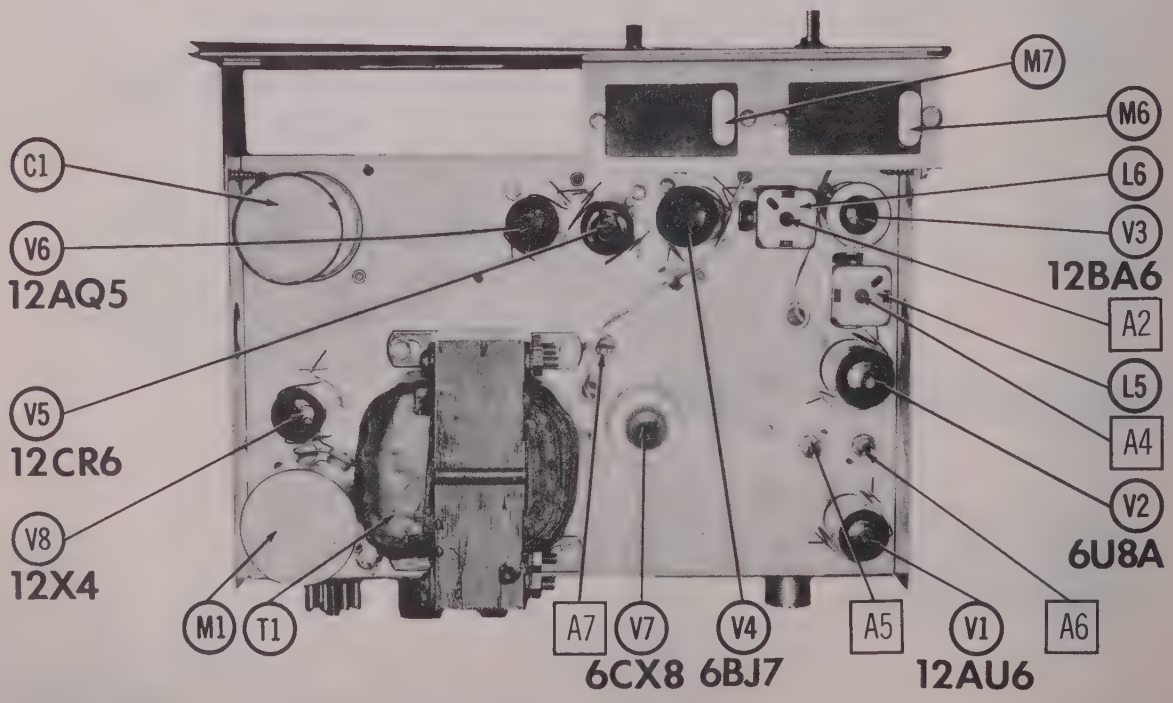
2. Connect high side of Signal Generator, set at proper channel frequency (400∿ mod.) to antenna socket. Adjust A5 and A6 for maximum deflection on VTVM.

TRANSMITTER (REFER TO NOTICE ON FRONT PAGE)

1. Connect 50 ohm dummy load to antenna socket.

   Connect DC probe of VTVM to point Ⓑ, common to chassis. Adjust A7 for maximum deflection.

   Adjust A8 and A9 for maximum brilliance of indicator lamp.



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12AU6	V5	AF Amp. -Speech Amp.	12CR6
V2	Mixer - Osc.	6U8A (6U8) *	V6	Receiver Output-Modulator	12AQ5
V3	IF Amplifier	12BA6	V7	Trans. Osc. -Final Amp.	6CX8
V4	Det. -ANL-Squelch Rect.	6BJ7	V8	Rectifier	12X4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	WEBSTER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲20	300		AFH4-46	D0380	XC4-72	FP419.7	TMQ-4140	TVL-4631
B	■40	300							
C	●60	300							
D	50	25							
C2	4	150		PRS1400	BBR4-150	QT1-2	TT150X4	TD-4-150	TVA-1402
C3	25	50		PRS1340	BBR25-50	QT1-11	TT36	TD-25-50	TVA-1306

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4A		#461-466						
B								
C5	5.1 10%	#VCM20B471M	NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050		10TCC-V50
C6	470 1000V 10%					VCM-20-471M		
C7	1 10%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	27 NPO		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	27 NPO		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	10 + 1mmf	Note 1	NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C15	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C21	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C22	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	330		DI-330	DD-331	L10T33	CCD-331	B-333	10TS-T33
C26	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C29	1000	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C30	10 + 1mmf		NPO-SI 10	TCZ-10	C10Q10C	CCTO-100	CNO-410	10TCC-Q10
C31	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C32	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C33	56 10%		NPO-SI 56	D6-560	L10Q56	CCD-560	GP456	10TS-Q56
C34	1000 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C35	56 10%		NPO-SI 56	D6-560	L10Q56	CCD-560	GP456	10TS-Q56
C36	1000 1500V		HVD15-1000	DD30-102	HVB16D1	3CCD-102	2HV-210	30GA-D10
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	4700 3000V			DD30-472		3CCD-502	3HV-247	30GA-D47
C41	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C42	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C43	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C44	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C45	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

\# Webster Part Number

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	WEBSTER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg	½	G-45	B-70-S	A47-1meg-S	Q13-137	U53	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On
R2A	500K	½	VF-45	B-59	A47-500K-S	Q11-133	U50	Squelch
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-2	SWE-20	76-2	US-27	ANL Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	560K				R18	100K			
R4	56K				R19	2.2meg			
R5	1meg				R20	270K			
R6	2200Ω				R21	1meg			
R7	1000Ω				R22	560K			
R8	100Ω			Note 1	R23	470Ω 1W			
R9	270K				R24	56K			
R10	56K				R25	2200Ω			
R11	1meg				R26	27K 2W			
R12	56K				R27	270Ω			
R13	56K				R28	330Ω			
R14	1meg				R29	100Ω 1W			
R15	100K				R30	100Ω 1W			
R16	27K 2W				R31	39Ω 2W			
R17	100K				R32	22Ω			

Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		WEBSTER PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	RF Choke (5.6uh)	TL-70	SW-631	4609	RTC-8519	T959	① Not used in some versions.
L2	RF Pri	TL-91	TV-118	6171-A	RTC-8609	T216	
L3	RF Sec	TL-91	TV-118	6171-A	RTC-8609	T216	
L4	RF Choke (1.5uh)	TL-68 ①	BC-562	4604	RTC-8516	T856	
L5	Input IF	TL-34	BC-352	12-C1	RTC-8632	T607	
L6	Output IF	TL-35	BC-353	12-C2	RTC-8633	T608	
L7	RF Choke (5.6uh)	TL-70	SW-631	4609	RTC-8519	T959	
L8	Osc. Plate	TL-91	TV-118	6171-A	RTC-8609	T216	
L9	RF Choke (5.6uh)	TL-70	SW-631	4609	RTC-8519	T959	
L10	RF Choke (15uh)	TL-69		4624	RTC-8524	T862	
L11	Final Plate	TL-93					
L12	Ant. Loading	TL-92					
L13	Hash Choke (46uh)	TL-72		7825-8			

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	WEBSTER PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .6A(AC) 12.6VCT @ 3A(DC)	560VCT @ .080A DC	12.6V @ 1.6A (AC)	ST-102					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	WEBSTER PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6200Ω	3-4Ω	ST-19			24S05	S-63X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	WEBSTER PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	P4VA-NW	4A1	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	WEBSTER PART No.	REPLACEMENT DATA
K1	ANL-Squelch Network	(2) 100mmf, 10000mmf, (2) 270K, (2) 1meg	59-4719	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				WEBSTER PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6	115v	G-1601	6301	G1601	6301	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			WEBSTER PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	7.5A 250V	AGC 7½		31207.5 (3AG 7½A 250V)	342001	AGC 7½	HKP
M3	3AG	2A 250V	AGC 2		312003 (3AG 2A 250V)	342001	AGC 2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	WEBSTER PART No.	NOTES
M4	Switch	F-49	Channel Selector (Rotary Wafer)
M5	Switch	SW-736	Receive-Transmit (DPDT Slide Type)
M6	Crystal		Receive
M7	Crystal		Transmit

CABINETS & CABINET PARTS

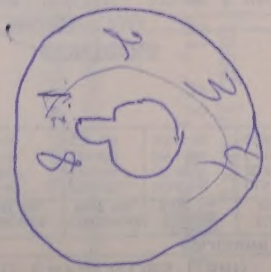
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Lens	147-10	Clear Lucite
Knob	101TB270	Channel Selector
Knob	105P-T3270	Volume, Squelch

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



BAND RADIO MANUAL

KB8-2877

owing and widespread popularity of Citizens-band radio an entire new field in communications. Since the introduction of the Class-D service several years ago, there has en an increasing demand for additional servicing facilities to ie this type of two-way equipment. Thus, there are excellent unities awa ing qualified technicians who want to build a 10,000,000 more profitable business by expanding into the Citizens-band field.

The primary purpose of this manual is to provide data needed by the user or technician. An editorial section at the front discusses the classes of equipment used, receiver and transmitter circuits, transceivers, converters, transverters, and the tone-coded squelch system.

Complete PHOTOFACT® service data have been included for 30 popular models. The coverage includes schematics, photos showing component layout and identification, alignment instructions, complete parts lists and replacement data, and other valuable information which will make CB servicing easier and more profitable.

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